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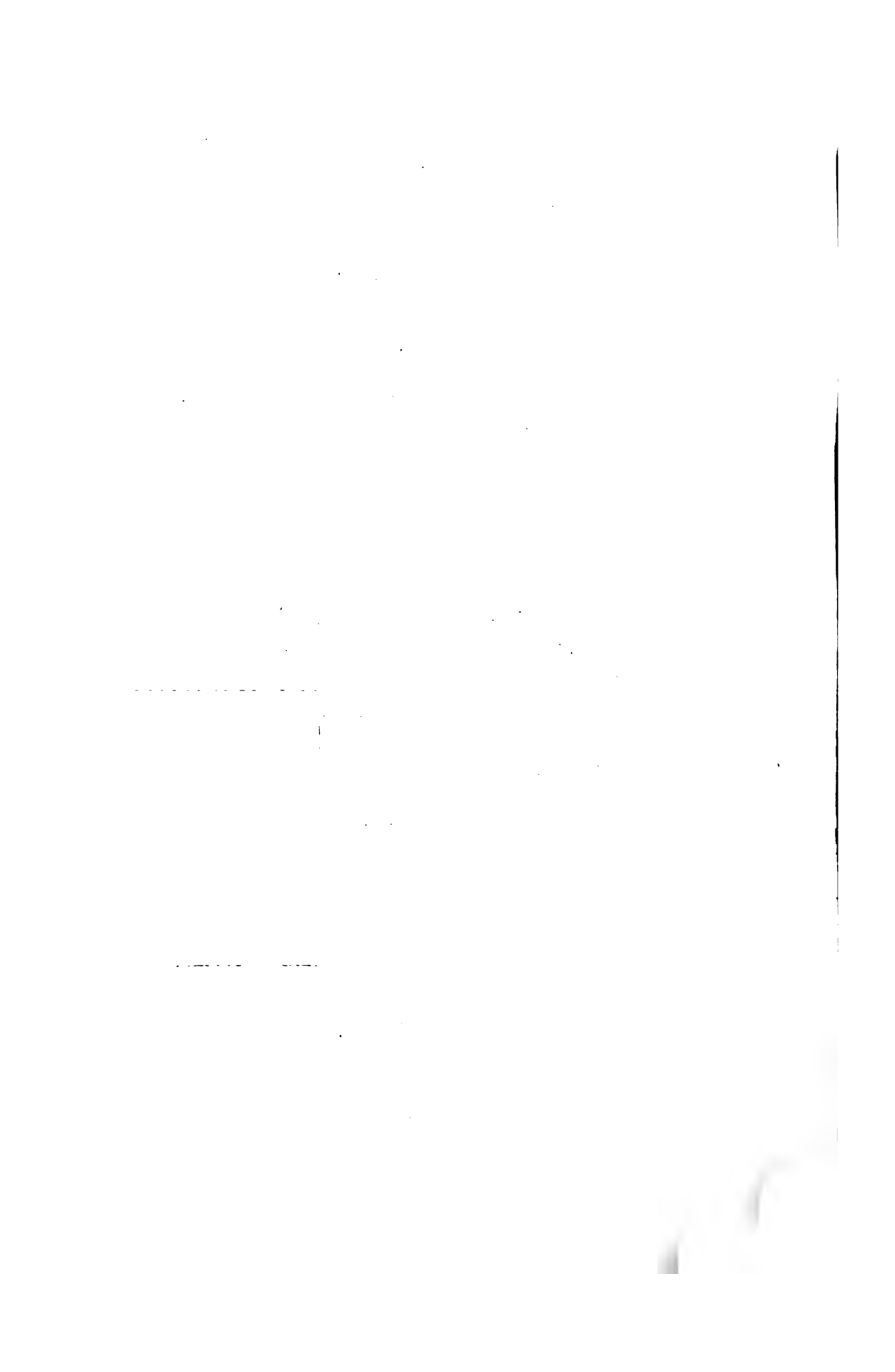


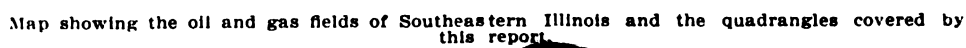
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*J. C. Branner* <sup>ct.</sup>

STATE OF ILLINOIS  
STATE GEOLOGICAL SURVEY  
FRANK W. DeWOLF, Director

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BULLETIN No. 22

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THE OIL FIELDS  
OF  
Crawford and Lawrence Counties

BY  
RAYMOND S. BLATCHLEY

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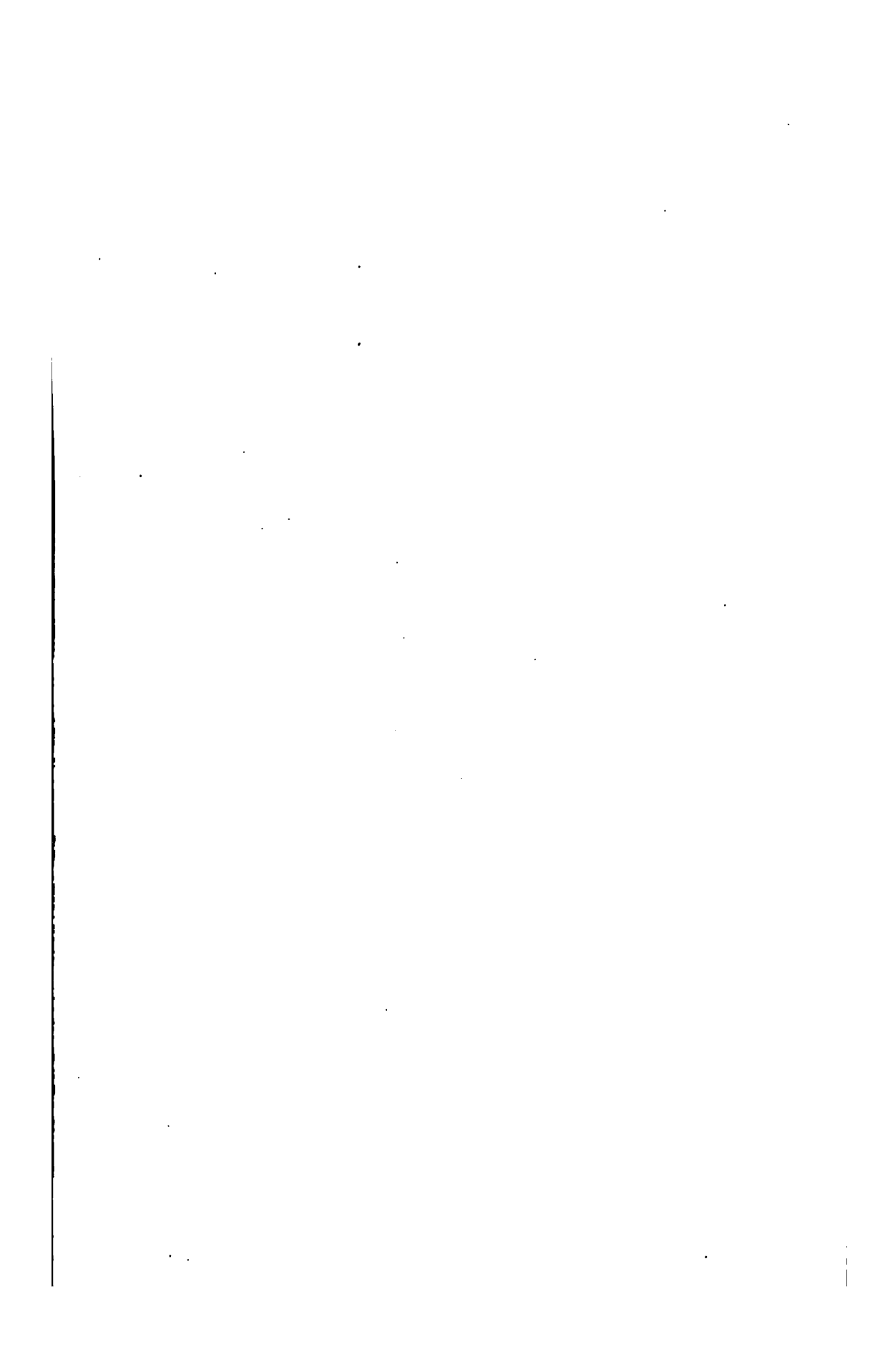
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## LETTER OF TRANSMITTAL.

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STATE GEOLOGICAL SURVEY,  
UNIVERSITY OF ILLINOIS, JANUARY 30, 1913.

*Governor E. F. Dunne, Chairman, and Members of the Geological Commission:*

GENTLEMEN—I submit herewith a report on the oil fields of Crawford and Lawrence counties, Illinois, and recommend that it be published as Bulletin No. 22.

The author, Mr. Raymond S. Blatchley, has been on the staff of the survey since 1908 and has devoted a large part of three years to the studies presented here.

The colored maps which accompany the report present information of great commercial value in locating future wells in the district. The kindness of property owners and oil operators who have contributed information freely to the survey is hereby acknowledged, and confidence is expressed that they will find the report almost invaluable.

Very respectfully,

FRANK W. DEWOLF,  
*Director.*



## THE OIL FIELDS OF CRAWFORD AND LAWRENCE COUNTIES, ILLINOIS.

By Raymond S. Blatchley.

### CHAPTER I.

#### Historical, Theoretical, and Geological Aspects of the Illinois Fields

#### OBJECT OF REPORT.

This report presents the results of a study of the geologic conditions in the southern half of the eastern Illinois oil fields. The specific area of investigation lies in the southern half of Crawford and the northern portion of Lawrence counties, in portions of the Hardinville, Sumner, and Vincennes quadrangles (See Plate IA.) The object is to discuss the control of the accumulation of oil and gas in these fields and to present facts which further confirm the anticlinal or structural theory for the concentration of oil and gas in raised formations. It is also possible that additional proof is added to support the theory of the origin of oil from organic remains buried in limestone and shales. The report also discusses the stratigraphy and describes the commercial features peculiar to this territory, including production, costs, methods of transportation and storage, field operations, leasing, etc. It is desired to preserve in printed form all available records of the territory, particularly for use in future stratigraphic and structural studies and for reference by the operators.

#### METHODS OF STUDY.

The method of study was to map by means of contour lines, or lines through points of equal altitude, the geologic structure of the producing sands. The contours were made upon the positive altitudes of the sands above a datum plane 1,500 feet below mean sea level. These maps show the oil sand as if everything above it had been removed. The undulations, slopes, basins, etc., are clearly defined. In this way the oil, gas, and water relations to the structure are studied. In addition to the contour maps cross-sections were made along the crest of the anticline and crosswise to it. These graphic sections are intended merely to make

clearer the contour maps. The records along the selected lines are plotted on a uniform scale and are placed in their proper positions along the section, with regard both to the elevation of the wells above sea level and to their linear distance from one another. The points at which the cross-section lines cut the contours are measured and marked on the section. All points representing a particular horizon are connected. Thus, a mechanical means of ascertaining structural features was developed and significant facts were revealed.

#### ACKNOWLEDGMENTS.

The taking of elevations and logs of the wells within the portion of the oil fields covered by this report began in the summer of 1908. The writer was assisted in this work by Douglas Wright in the Crawford county portion of the Hardinville quadrangle and by J. C. Jones in the Lawrence county division. The leveling in the Sumner and Vincennes quadrangles was completed the following summer with the assistance of W. E. Deuchler, levelman, and Douglas Wright and H. H. Johnson, rodmen. A final review of the Lawrence county fields was made in 1911 with the assistance of D. G. Thompson. The report would not have been possible except for the hearty coöperation of all operators who furnished well records, maps, and other information. Much help was given in the stratigraphic studies by Dr. J. A. Udden who made an intimate examination of well samples from eleven wells within the investigated area. Special thanks are due the officials of the Ohio Oil Company, Marshall, Ill., for samples from a number of wells in the region. These were saved at much trouble and expense. Dr. Stuart Weller of the University of Chicago gave helpful consultation relative to the stratigraphy of the Mississippian rocks. To all of these individuals the writer expresses his appreciation and thanks.

#### HISTORICAL REVIEW OF OIL DEVELOPMENTS IN ILLINOIS.

In the main fields of Illinois, exclusive of producing areas elsewhere, there have been drilled, during the past seven years, over 20,000 wells in a producing territory which covers about 250 square miles. The following notes sketch the history of drilling from the earliest days:

In the earlier part of the "sixties" the first oil excitement spread over the eastern United States and extended westward to Illinois. In 1865 the first wild-catting took place in Clark county about 8 miles north of Casey, in Parker township. Here, several holes were put down in attempts to locate oil and gas but the work was abandoned. The small amount of oil found in the wells perhaps would have been greater had proper casing been used. This would have shut off the salt water, which, as a matter of fact, probably drowned out the oil and prevented an earlier discovery of the present immense field.

About this time, oil and gas were found accidentally in Montgomery county, near Litchfield. Coal prospecting from the floor of one of the mines led to deeper drilling and the discovery of a strong flow of salt water which threatened for a time to flood the mine. Another coal pros-

pect near the mine discovered a small quantity of oil and gas. The oil and water from this drill hole leaked into a sump in the mine, where for many years oil was skimmed from the top of the water and utilized.

During the "eighties," when new prospecting was taking place at various points in Illinois, the previous finding of oil at Litchfield led to renewed drilling which brought in several gas wells in that vicinity. In 1882 a well was drilled about 2 miles south of Litchfield, which was reported to show about 400 pounds gas pressure. This well was apparently first drilled to 580 feet without success. Two years later it was drilled 200 feet deeper, where water-bearing sand was tapped. The gas was secured at 640 feet and had exceptional pressure. The flow of salt water, however, was too strong to be plugged successfully and, consequently, drowned out the gas. In 1886 a number of wells that yielded both gas and oil were drilled in the vicinity of Litchfield, to an average depth of about 650 feet. In all, between the years of 1882 and 1889, about thirty wells were drilled.<sup>1</sup> The majority of them were of short life but five or six produced a small amount of oil up to the year 1903. All are abandoned at the present time.

Gas was discovered in Pike county in 1886 while drilling for water in the N. W.  $\frac{1}{4}$  S. E.  $\frac{1}{4}$  section 1, Derry township. It was found at a depth of 186 feet.<sup>2</sup> This destroyed chances of a good water supply so a second well was drilled on the same farm a short while afterwards. Gas was secured in this well at the lesser depth of 168 feet. Both wells were abandoned because of lack of facilities for taking care of the gas. Drilling was then suspended in this part of the State for 15 years, or until 1905. In that year Mr. William Irick drilled a well for water on his farm and, as in the previous cases, met a strong flow of gas. He, however, piped it to his house for domestic use. There immediately followed a development of this area, which, in a little over a year, brought in over thirty wells. All but six of these produced gas, but no oil was found. The gas horizons are between 75 and 350 feet below the surface. The field at the present time covers an area about 10 miles long and 4 miles wide. The gas accumulation is governed by a small fold in the Niagara limestone.

Similar prospecting took place in 1888 near Sparta in Randolph county. Home capital was enlisted and a well that yielded a good pressure of gas<sup>3</sup> was drilled to a depth of 850 feet. This encouraged further drilling and up to the year 1894, 22 wells were put down. Of these, over twelve yielded gas, and four of them had initial pressures between 150 and 250 pounds to the square inch. The average life of the wells was about seven years.

The next recorded wild-catting took place in 1900, and indirectly resulted in the discovery of the main oil field. A company styled the Crawford County Oil, Gas and Coal Company drilled a well in the S. E.  $\frac{1}{4}$  section 35, Robinson township, Crawford county.<sup>4</sup> The well reached a depth of 820 feet where it was abandoned because of the caving of the strata and the tapping of a strong vein of salt water. The same company shifted operations in the following year, 1901, to the D. C.

<sup>1</sup> Mineral Resources of the United States for 1889, p. 353.

<sup>2</sup> Savage, T. E., Pike County gas field: Bull. Ill. Geol. Survey No. 2, 1906, p. 83.

<sup>3</sup> Report Illinois Board World's Fair Commissioners, 1893, p. 183.

<sup>4</sup> Blatchley, W. S., Oil Developments in Illinois to 1904: Bull. Ill. Geol. Survey No. 2, 1906, p. 14.



Jones farm, in the southwest quarter of section 22 of the same township. A well drilled here to a depth of 1,040 feet secured a small amount of gas. Thus, the efforts of the company to locate "fuel" were rewarded slightly and with further hope, they drilled to 1,190 feet. At this point they met a strong vein of salt water and abandoned the well. The company attempted other wells on the same farm in the years 1901, 1902 and 1903, but, in each case, lost their tools. The sixth attempt was rewarded, in 1904, by the finding of small amounts of oil and gas between 900 and 1,200 feet. The bore was carried to 1,330 feet but was abandoned. It was but eighteen months after this that the main productive field was opened up within a few miles of this area.

The suggestion of an oil field in the vicinity of Casey prompted by the earlier prospecting of the "sixties," led Col. L. D. Carter of Oakland, Ill., to secure the services of J. J. Hoblitzel & Son, of Pittsburgh, Pa., in re-drilling this area. A large block of lease was gathered up, and early in the spring of 1904 a well was started on the Young farm near Oilfield. This well produced a good pressure of gas and some oil. The gas was cased off and used for field operations but the oil yield was insignificant and was discarded. A second well was completed in the same year on the J. S. Phillips farm in the northeast quarter of section 18, Parker township. It produced 35 barrels of oil. Other wells were started in the same year in this vicinity and in 1905 about 100 square miles of territory was being drilled. Of this about 60 square miles were eventually found productive. These fields are called the "shallow" area because the oil comes from a depth of between 400 and 600 feet. Drilling was active until 1909, when the boundaries of the productive territory for this section of the oil fields were pretty well established. In 1909 there was a decreasing development and at the present time it has practically ceased. A great many of the original wells are yielding so poorly that they are rapidly being plugged and abandoned.

Added vigor was given to the development of the eastern Illinois fields on February 6, 1906, when D. T. Finley, of Pittsburgh, drilled a well on the J. W. Shire farm in the northwest quarter of section 15, Oblong township, Crawford county. The oil was obtained at 890 feet, and the initial production was 250 barrels per day. This well opened up the Robinson pool, which is the largest in the oil area and covers, in all, about 110 square miles of productive territory. The oil is found in sands ranging from 750 to 1,000 feet in depth. There is one general sand made up of three or more generally parallel lenses. There are, however, small areas where only two or even one lens are noted.

The year 1907 brought an extension of development in a small isolated pool about three miles to the southeast of the large Robinson pool. The new pool was known first as the Honey Creek district and originally covered but six or seven square miles. It has later been associated with the Flat Rock district to the east and the two are now joined, so as to comprise about 25 square miles of area. To the north of the Flat Rock area the small Duncanville pool was developed. The area covered is between two and three square miles. The oil is from about the same horizon as that of the Honey creek, Flat Rock, and Robinson sands but has a much lower gravity. It is used almost exclusively for fuel.

The Lawrence county field began to be developed actively in 1907-1908. It has been the most promising, in that seven sands are attracting the attention of operators. The sands occur between depths of 800 and 1,900 feet and are known as follows:

- 1, 2 and 3. Bridgeport, upper lens, middle lens and lower lens.
4. Buchanan.
5. Kirkwood.
6. Tracey.
7. McClosky.

Within this area, which covers about 40 square miles, there has been developed a larger per cent of big wells than in all other pools in Illinois combined.

After the Clark county fields was brought in miscellaneous drilling was stimulated throughout the State. A second attempt was made to discover oil in the vicinity of Sparta, Ill. by J. J. Hoblitzell & Son, who began drilling in 1906. As a result of this work, two or three wells that produced oil in small quantity were completed in the following year. In 1908 a total of sixteen wells had been drilled, but of these only six or seven yielded oil. The amounts were small, except in the case of two wells, one on the Foster farm that yielded about twenty barrels of oil per day, and one on the McIlroy farm that had an initial production of about 100 barrels. All the wells have since declined and the field is now abandoned.

In 1906 an attempt was made to locate oil at Tolono in Champaign county. The drilling revealed oil, but only in slight quantity. Apparently it was the intention to prospect the LaSalle anticline which gives rise to the production area to the southeast.

Early in the year 1908, oil was reported as seeping through a fault into a coal mine near Centralia, Marion county. The attention of oil operators was excited and several shallow wells were drilled. These yielded small amounts of oil, but were of slight commercial value. Wild-cattling was prompted in the winter of 1909 in the vicinity of Sandoval, five miles north of the Centralia shallow wells. Late in March, a deep well, which yielded about thirty barrels per day, was completed upon the Stein farm, one mile north of Sandoval. A second well was finished in July on the Benoist farm, adjoining the Stein land. This well proved to be a valuable producer of both oil and gas. Its success stimulated wholesale leasing and drilling in all directions in Marion county, with the result that a small, but rich, isolated, field of about three-fourths of a square mile was defined. This field is still credited with a good production.

A new gas area was opened in 1909 near Carlinville, Macoupin county, by the Impromptu Exploration Company. Several wells have been drilled south of the town. The gas comes from a sandstone, probably the Pottsville, immediately above the Mississippian limestones. So far, two wells have produced about six barrels of oil per day. The pressures of gas are not large enough to warrant an extended development for commercial purposes.

A small gas area, similar to that of Carlinville, was also opened in the spring of 1910 several miles east of Jacksonville, Ill. The wells were small in quantity. Late in 1911 two other small oil wells were added to the field.

In April of 1911 wild-cattling developed an oil field about three miles northwest of Carlyle, Ill., which has since been defined within an area of about  $1\frac{1}{2}$  square miles. The governing structure of the field seems to be an elongated dome interrupting the gentle trend of the broad western flank of the Illinois basin. The initial production of the first wells was excellent and caused a rush to the territory. High bonuses were paid for leases many miles from proven territory which later proved barren. The area was suggested as promising by the State Geological Survey previous to exploitation.<sup>1</sup>

Various other attempts have been made to find oil at widely separated points. Small amounts of oil or gas have been observed in such localities as Mascoutah, Marissa, Waverly, Greenville, Decatur, Iola, Eldorado, Old Ripley, Patton, Bartelso, Ridgeway, Campbell's Hill, and Denny. Barren wells have been put down at Herrick, Cobden, the American bottoms east of St. Louis, Trenton, Aviston, Iuka, Olney, Sumner, Albion, Carmi, Duquoin, Pinckneyville, Coulterville, Vandalia, Marshall, Thomasboro, Grafton, Jerseyville, Kane, Richview, Nashville, Omaha, Waterloo, Hansen, Pocahontas, and at a number of other places.

## ORIGIN AND ACCUMULATION OF OIL.

### ORIGIN OF OIL.

The origin of oil and gas has been a puzzling problem for many years, especially since petroleum has come into world-wide use. Chemists and geologists have attacked the problem from their respective points of view and have presented plausible theories, none of which, however, have explained satisfactorily the broad distribution of petroleum in all kinds of sedimentary rocks of various ages.

The chemist has produced many of the component parts of petroleum in the laboratory; he has broken down certain substances into constituents, some of which have properties resembling those of crude petroleum; and he even reproduced certain isometric forms of hydrocarbons peculiar to petroleum—yet the theories arising from these results fail to meet certain geological conditions that prohibit their acceptance.

Geologists have met the problem from a different point of view. Some, on the one hand, have considered the conditions of deposition of sedimentary rocks and have concluded that oil and gas originate from animal and plant life buried in the sediments. Others have conjectured on the internal conditions of the earth during its stages of cooling and settling and have concluded that oil originated from mineral substances. This attitude is closely allied to the chemist's point of view. The geologist's views are not wholly acceptable and hence the origin of petroleum remains uncertain. The whole problem has resolved itself into two general theories styled the *inorganic* and the *organic*.

### THE INORGANIC THEORY.

The inorganic theory was promoted by the discovery that the carbides of certain metals may be broken up into hydrocarbons by the action of water and that alkaline metals produce hydrocarbons if brought into con-

<sup>1</sup> Blatchley, R. S., Ill. State Geol. Survey, Bull. No. 16, pp. 87 and 167.

tact with water saturated with carbon dioxide gas. It was claimed that volcanoes, geysers, and hot springs indicate heat within the interior of the earth sufficient to have formed carbides; and that these were broken up by percolating waters into migrating gases. The presence of hydrocarbons in volcanic gases may thus be explained. Such migrating gases on passing from hot formations to higher, cooler, strata would naturally be condensed into petroleum.

It is claimed that granitic rocks are full of joint planes and other minute cracks, and thus it is impossible for the gas and oil to remain in them because of the ease with which they travel and diffuse. When the shales are reached the oil "simplifies" itself or, in other terms, it leaves more or less of its more viscuous constituents behind. It is claimed that the oil of various American fields, with exception of those like the California and Texas fields, has migrated from a distance to the localities in which they now are found. The fact that all oil fields are confined to sedimentary strata and that below the oil-bearing horizons there frequently are unproductive strata of the same nature makes it difficult to understand how the inorganic theory can apply to our larger fields. It is difficult to understand how the oil of such fields as those of Pennsylvania and Illinois can have migrated long distances and not left traces of travel in the intervening rocks. It is apparent that the inorganic theory of the origin of oil and gas is open to many criticisms. The theories derived from chemical reactions are ingenious, and, no doubt, may explain the origin of some petroleum; they do not, however apply to the conditions of our many oil fields as readily as the organic theories.

#### THE ORGANIC THEORY.

The organic theory advocates that oil and gas originate from the decomposition of vegetable or animal matter, which may have occurred in the bed which now yields oil or gas, or in adjoining beds from which they have migrated.

Chemists have shown that when the body of an animal or a plant is distilled in a closed retort or is allowed to undergo decay in the absence of air, certain gaseous or liquid products are obtained, which resemble petroleum and natural gas. Much the same results are obtained by bacteriological putrefaction of organic matter, without aid of heat. Natural decomposition of animal and vegetable matter in the sedimentary rocks through the periods of geologic time is thought to explain the origin of petroleum.

Shale is held to be the source of petroleum by some supporters of the organic theory. All shale beds are of sedimentary origin and are composed of fine particles of clay. The clay is inorganic and was deposited in water with plants and marine animal life. This decomposition was varied by the deposition of sand, and limey material. The completed stratified rocks comprise a succession of sandstone and limestone, interlain with shale beds. In some fields, as California, diatoms embedded in shale are regarded as the source of the oil. Elsewhere vegetable remains, even of delicate type, like algae, render the enclosing shale highly bituminous and oily. It is thought that all stratified beds contained water

in some degree and that the shales, because of their compactness, had less water than the sands. The presence of water in the formations may have aided in the later migration of the oil from the shales to the sands, by providing a ready medium through which the oil could rise under the influence of gravity to the highest possible position in the sand strata. The shale and sand oils are usually classified as "sweet" oils in contradistinction to the natural petroleum of the limestone beds.

The limestone theory of the origin of oil differs from the last by supposing that marine animal life, peculiar to limestone formations was the source of oil in the sedimentary rocks. The limestone oils of Ohio, Indiana, and parts of Illinois are often known as "sour" oils, because their sulphur and nitrogen content is greater than that of oils found in sand formations. They have a ranker odor than other oils and are often much lighter in color; in fact, they are sometimes designated as "green" oils.

The oil of the Mississippian formations or the Tracey and McClosky sands have undoubtedly originated from marine animals, because the producing zones are highly calcareous sands or oolitic limestones and the oil contains much sulphur. Some of the oil from the upper Pennsylvanian beds in Clark county is sour and comes from calcareous sandstones.

Of the two organic theories of the origin of oil, the shale theory is the more applicable to the pools in the Pennsylvanian or "Coal Measures" sands of the Illinois fields, since the sands seem to bear few or no fossils and are consequently barren in animal organic remains. There was, however, undoubtedly a great abundance of plant life in the waters of the basin of southern and central Illinois. The aquatic plants were algae and various types of sea weeds. In addition to these, land plants were washed down by streams and also marsh plants, such as ferns, ground-pine, etc. Plants from both sources were deposited in the muds and silts of the accumulating deposits of centuries. These, with possibly some marine life, were shut off from the oxygen of the air and other destructive agents and were trapped within the shale deposits, where eventually, through the lapse of geologic time a peculiar, slow, distillation took place, wherein the protoplasm, cellulose, and other constituents of the once living matter, were converted into oils and gases. The distillation and migration were probably a matter of ages. Natural gas is the volatilized, lighter portion of the oil which originated according to the process mentioned. The difference of gravity between gas, oil, and water caused the two former substances to seek the highest places in the rock strata. The presence of natural gas in any area is generally accompanied by oil at some point along the structure in which accumulation has taken place.

## CIRCULATION AND ACCUMULATION OF OIL.

### GENERAL CONSIDERATION.

A problem of special importance is the circulation of oil from its source and its mode of accumulation in porous rocks. The matter is being investigated by laboratory methods by various scientists. The cir-

culation is accomplished by capillarity, gravity, and gas or rock pressure. The accumulation of oil requires a porous reservoir with an impervious cover or roof. Certain features of geologic structure and conditions of water saturation are important factors in determining the localities at which the accumulation takes place. The circulation must also be affected by the physical properties and relations of the oil and salt water, and the rocks in which they occur. One of the potent forces in directing the circulation is doubtless capillarity, since both the shales and the sands are porous formations.

Capillary action is the physical phenomenon consequent upon the attraction or repulsion of liquids along the sides of very fine passages.

If a liquid of low specific gravity is brought into contact with a very fine hair-like tube it will seemingly pull itself along the passages; while a liquid of high specific gravity, such as mercury, will exhibit the reverse tendency. Capillary attraction is accompanied by concave liquid surfaces and capillary repulsion by convex liquid surfaces. Prof. A. W. Duff, of the Worcester Polytechnic Institute of Massachusetts, discusses the effect of capillary repulsion and attraction as follows: "When the effect (of capillary action) is a depression (mercury), the depressed surface is curved downward and the tension in the surface provides a pressure. When the effect is an elevation, the stretch on the upward curved surface tends to draw the liquid in the surface layer away from the liquid below and so produces a state of tension or diminution of pressure below the surface." If a difference of capillarity exists between water and oil in small tubes, the different elevations to which they are raised will be dependent upon the differences in their surface tensions and specific gravities, and the size of the tubes.

Shales and sandstones are porous formations containing infinite numbers of minute spaces capable of holding liquid. The spaces or pores may be likened to capillary tubes and may be assumed under proper conditions to promote capillary action. William Forstner<sup>1</sup> has the following to say of the classification of sand interstices: "The interstices can be divided into three classes: openings larger than those of capillary size, capillary openings, and openings smaller than those of capillary size, sub-capillary openings. Supercapillarity openings are found in bedding and joint planes, in coarse sandstones, and in conglomerates. In these openings the flow of liquids is controlled by the ordinary laws of hydrokinetics, modified by the viscosity of the fluid, and the regularity, size, and length of the openings. Capillary openings include the great majority of the interstices between the grains of sands and sandstones, many of those in conglomerates, and many of the openings caused by fracture. In these openings the velocity of flow depends upon the area and cross-section of the opening, its length, and the viscosity of the fluid. The movement is so slow that the friction of the moving fluid over the sedimentary film is very small, especially in long openings. Sub-capillary openings include part of the interstices in coarser sediments having capillary openings and nearly all the interstices between the grains of clays, shales, and slates. The movement of the fluid in these openings is excessively slow, under the hydrostatic pressures generally occurring

<sup>1</sup> Forstner, William, *The Occurrence of Oil and Gas in the South Midway Field, Kern County, California*. *Economic Geol.*, Vol. VI, 1911, p. 140.

in these strata the movement will be reduced to such an extent, that the fluid may be considered as [existing in] fixed films held by molecular attraction."

Capillarity was perhaps effective upon the included water of shales long before the distillation of oil began in them, and may have caused the expulsion of water into the sands. The action extended to the oil which began to originate and find its way into the pores of the shale. Its production was exceedingly minute, yet it was acted upon by capillarity, and caused to ascend toward the sand. The relation of specific gravity of oil and water caused the oil to rise to the top of the water in the sandstones. It is assumed that this action continued as long as distillation took place, until eventually the oil had left the shales to a large degree and had accumulated in the sandstones. The action may have been further aided by various compressions of the formations and other unknown physical phenomena until the shales had given up most of their oil to adjoining porous sandstones.

It is probable that the gaseous hydrocarbons and petroleums of various specific gravities were not separated until the more porous beds were reached. Under the stress of earth movements and different degrees of heat and pressure, changes in the composition of the petroleums must have occurred. Again the oil may have been affected chemically by water in the sandstones and altered from its original condition.

It is apparent that the distribution of petroleum is greatly influenced by the presence of water and it is a fact that there is abundant water in the Illinois oil sands. Oil is lighter than water. If both are present the oil rests upon the surface of the water and is to that extent controlled by the latter. If oil and water are not associated, the petroleum moves downward along bedding planes and through coarse, porous strata under force of gravity. In such a case it may occur in pores at the bottom of a syncline.

A third theoretical agent of the circulation of oil from its source of distillation to its present position is perhaps that of gas pressure or "rock pressure." This pressure is always noticeable when a new oil or gas area is opened up. The oil generally rises far up into the casing of the new well and often above its mouth. If gas is present and the casing is closed so that the product cannot escape into the air, a pressure is developed inside the pipe. The gas may accumulate instantly and thus indicate a very porous reservoir beneath, or it may take considerable time to gather and thus show a less porous one. The two conditions have often occurred in the same locality and yet the same pressures were eventually secured. It is thought that gas pressure may help to promote movement of oil through the containing rocks.

New lines of investigation have been carried on recently by Dr. D. T. Day, J. Elliot Gilpin, and Oscar E. Bramsky of the United States Geological Survey in an effort to find the cause of the differences between such oils as those of Pennsylvania and Illinois and those of Ohio and Indiana, or rather the Trenton limestone oils.<sup>1</sup> The question reverts to the cause of the difference between "sweet" and "sour" oils, assuming that all petroleum, no matter what its source is, is a definite substance;

<sup>1</sup> Gilpin, J. Elliott, and Bramsky, Oscar E., *The Diffusion of Crude Petroleum through Fuller's Earth*, Bull. U. S. Geol. Survey No. 475, 1911.

the product of one field differing from another only in the proportion of its series and members of hydrocarbons. The Pennsylvanian and Illinois "sweet" oils are found to contain a larger proportion of paraffin hydrocarbons and less benzine, unsaturated hydrocarbons, sulphur and nitrogen than the Ohio and some California oils. It is concluded that the first mentioned oils were migratory, because the sands in which they are found bear little evidence of containing a source for the petroleum, while the oils of Ohio and perhaps the McClosky oil of the Illinois fields are thought to have originated in the limestone beds in which they are found. If such is the case and petroleum is everywhere the same substance except for the lack of certain hydrocarbons, the difference in the two grades of oil must be the result of migration through filtrating materials, or, in other words, of a "selective activity" of shale or clay. It may be true that some of the Pennsylvania and Illinois oils now reposing in sands were originally of animal origin and they have lost some of their original ingredients by migration. These conclusions led to experiments upon the diffusion of petroleum through Fuller's earth, which is a good type of shale for purposes of investigation. It was found by Day that oil such as the Illinois oil could be produced by this method from crude Trenton limestone oil. Glass tubes packed with dry Fuller's earth were placed in vessels containing crude Illinois oil. The oil, in the course of some time, began to move upward in the tubes by force of capillarity. Examination of the tubes at the conclusion of the migration showed that light oils were found at the top, and low grade, heavy oils, sulphur, and other heavy constituents at the bottom of the tube. Continued filtrations of the oil removed the sulphur compounds entirely.

It was concluded from these experiments, "that the Illinois oil at some time in its history diffused through porous media, which exercised a selective action upon it, removing a large part of the unsaturated and sulphur compounds and probably the benzine and nitrogen compounds."

#### THE POROUS STRATUM.

Petroleum was valueless as a commercial product when it was originally formed, because its diffusion was so complete that a bore into the containing rock could scarcely have obtained a showing of oil. Its accumulation in pools of commercial value first demands more porous beds than the shales in which it is supposed to have originated. The strata of sand interlain with the shales are suitable reservoirs because in most cases they are much more porous than the compact shales. Exceptionally, the sands themselves contain portions which are extremely compact and impervious. These non-porous areas may act as retaining covers and effect the concentration of underlying oil where structure is favorable. They may be extensive enough to separate adjoining pools, or they may be small enough in extent to cause mere local "dry spots" in the midst of very productive territory, in which the sands are otherwise highly porous. The presence of small streaks of shale within the sandstones is frequent in Illinois formations. Often two or three averaging 5 to 15 feet in thickness may occur in a thickness of 50 to 80 feet of sand. The driller terms these "breaks." The sand and the



"break" merge into one another in most cases and oil is not often found where sand and shale are thus mixed.

#### IMPERVIOUS COVER.

An important requirement for the accumulation of oil and gas is an impervious cover, or retaining roof, which will hold the oil and gas captive in the porous stratum. In Illinois there is almost invariably a cover of hard, compact, shale over the oil sands. This is particularly true of the sands in the Pennsylvanian formations. The producing sands in the Mississippian formations are overlain in some instances by limestone. The impervious covers have doubtless caused the retention of the oil in the sands during the periods of earth movements which caused structural folds in the rock. If an oil pool did not have an impervious cover between it and the surface, the lighter portions of the oil would long-since have volatilized and passed off as natural gas, while only the heavy oil or asphalt-like residue would remain. Where a thin cover lies over a productive oil sand some of the lighter portions of the petroleum have escaped and heavy, lubricating oil is generally found. This is of low gravity and consequently of low grade, and generally serves as fuel oil. The abundance of shales within the "Coal Measures" and the upper Mississippian rocks of Illinois have prevented an extensive volatilization and consequently the oils are of good grade, averaging about 33° in gravity.

#### GEOLOGICAL STRUCTURES.

Another very important necessity for the accumulation of oil and gas in pools is the presence of certain types of structural features in the rocks. The sedimentary strata were deposited under water horizontally, or practically so, and the natural distillation of oil probably took place primarily while the beds were in that position. Subsequent disturbances took place causing the strata to be folded, forming as it were, arches, or domes, in some places, and corresponding troughs or basins in others. The arches are known as anticlines while the troughs are called synclines. When these undulations took place, the water, petroleum, and gas within the sand formations were forced to move and distribute themselves according to the laws of gravitation and hence according to their specific gravities. The water was the heaviest of the three fluids, and, therefore, sought the synclines as far as possible, depending, of course, upon the porosity of the sands. Its tendency was to displace the oil and gas, forcing the oil to float on the water and the gas to rise still higher. The oil was enabled to rise as far as the water extended up the slopes of the syncline, while the gas was able to free itself from the fluids and rise to the highest place in the porous bed, usually the crests of the anticlines.

The earth disturbances effecting the changes in the positions of the strata may be responsible also for minor irregularities which occur on the anticlines and synclines themselves. The surface of an oil sand on the anticline may be pitted or undulating. This condition may affect an extensive area or only a few acres of ground. The general accumulation of oil and gas is governed by the anticline proper, covering many miles, and the segregation of pools may possibly be caused by smaller folds on

the large one. Coupled with this intricate system of synclines and arches on the parent fold, there is variation in the porosity of the sands; the two conditions greatly affect the distribution of oil and gas. It is readily recognized that either factor may, locally, explain the presence of dry holes within productive territory. Some question has arisen as to whether these minor arches are true anticlinals of deformational character or whether they represent merely original thickening and thinning of particular beds or, again, whether they result from unequal settling during the consolidation of the sediments. Locally, any or all of these factors may account for the conditions.

Another important type of geologic structure in which an accumulation often occurs, is the "terrace" or flattened area upon the flanks of a syncline or anticline. The terrace, strictly speaking, is an interruption in the uniform dip of the sides of a basin, where the rocks are approximately horizontal. Such terraces are to be found upon the sides of the great structural basin in southern and central Illinois. A segregation of oil takes place upon a favorable terrace much in the same manner as in the anticlines and the synclines. The water of the basin enables the oil to rise to the terrace, where it may be trapped by friction. But the oil, originally in the sloping sand above the terrace, may migrate farther up the general incline so as to float on the water surface. The gas follows its usual course in freeing itself from the oil and accumulates in the terrace head or continues up the general dip to the adjacent anticline or to some impervious barrier.

Frederick G. Clapp has classified oil pools according to their geological structure, because all known fields have shown their accumulations to be due primarily to definite structures. His classification is as follows:<sup>1</sup>

1. When anticlinal and synclinal structure exists.
  - Strong anticlines standing alone.
  - Well defined alternating anticlines and synclines.
  - Monoclines with change in rate of dip.
  - Structural terraces.
  - Broad geanticlinal folds.
2. Quaquaversal structures.
  - Anticlinal-bulge type.
  - Saline dome type.
  - Volcanic neck type.
3. Along sealed faults.
4. Oil and gas sealed in by asphaltic deposits.
5. Contact of sedimentary and crystalline rocks.
6. In joint cracks of sedimentary rocks.
7. In crystalline rocks.

Investigations of the main fields in Lawrence county, Illinois, reveals an additional member to Clapp's arrangement. This is a double plunging anticline or a combination of a strong anticline standing alone and a dome or quaquaversal structure. This may fall under Class I or it may necessitate subdivision of Class 2 as follows:

2. Quaquaversal structures.
  - (a) Anticlinal-bulge type.
  - (b) Saline dome type.
  - (c) Double-plunging anticline type.
  - (d) Volcanic neck type.

<sup>1</sup> Clapp, Frederick G., *The Occurrence of Oil and Gas Deposits Associated with Quaquaversal Structures*. Economic Geology, Vol. VII, No. 4, 1911, p. 364-381.

## WATER SATURATION.

One of the most important factors, if not the greatest, in the concentration of oil in raised structures, is the presence or absence of water in the oil-bearing stratum. Mr. W. T. Griswold offers some very interesting observations upon this subject with reference to the Appalachian region.<sup>1</sup> The theories are more or less applicable to the Illinois rocks, inasmuch as they are of similar age and character. His conclusions are as follows:

"In *dry* rocks the principal points of accumulation of oil will be at or near the bottom of the syncline or at the lowest point of the porous medium, or at any point where the slope of the rock is not sufficient to overcome the friction, such as structural terraces or benches. In porous rocks, *completely saturated*, the accumulation of both oil and gas will be in the anticlines or along level portions of the structure. Where the area of porous rocks is limited, the accumulation will occur at the highest point of the porous stratum; and where areas of impervious rocks exist in a generally porous stratum the accumulation will take place below such impervious stop, which is really the top limit of the porous rock. In porous rocks that are only *partly filled* with water the oil accumulates at the upper limit of the saturated area. This limit of saturation traces a level line around the sides of each structural basin, but the height of this line may vary greatly in adjacent basins and in different sands of the same basin.

"Partial saturation is the condition most generally found, in which case accumulations of oil may occur anywhere with reference to the geologic structure. It is most likely, however, to occur upon terraces or levels, as these places are favorable to accumulation in both dry and saturated rocks.

"Under all conditions the most probable locations for the accumulation of gas are on the crests of anticlines. Small folds along the side of a syncline may hold a supply of gas, or the rocks may be so dense that gas may not travel to the anticline, but will remain in volume close to the oil."

The above observations were found applicable in the Illinois oil fields, as described under the relations of structure to salt water, oil and gas. The Illinois wild-cat areas have not offered sufficient data as to water saturation to warrant conclusions with reference to it. It is hoped that in the future the operators in Illinois will note with as much exactness as possible the wet condition of the sands they encounter. It will then be possible for the geologist or engineer to offer better suggestions as to the probable conditions in prospective oil areas.

## GENERAL GEOLOGY OF ILLINOIS RELATING TO OIL AND GAS.

## INTRODUCTION.

In order that the reader may have a general view of the oil and gas conditions of the State, a brief elementary review of its geology is presented.

<sup>1</sup> Griswold, W. T. and Munn, M. J., *Geology of Oil and Gas Fields in Steubenville, Burgettstown and Claysville Quadrangles, Ohio, West Virginia and Pennsylvania.* Bull. U. S. Geol. Survey No. 318, 1907, p. 15.

Those who have observed the ledges exposed at quarries or in the banks of streams appreciate that the rocks occur in rather definite layers of varying thickness. Well drillers, especially, realize that sandstone, shale, limestone and combinations of these rocks underlie the State as alternating strata of considerable regularity. The study of these relations constitutes stratigraphic geology or *stratigraphy*.

A rock stratum may underlie a large or a small area. Thus, a coal bed or an oil sandstone, or "*sand*," may be present in one locality but absent in the adjoining region. The *areal* extent of oil sands therefore is a matter of importance to operators.

The rock layers exposed to view appear to be flat-lying or horizontal. Detailed study may show gentle pitching or *dipping* of the strata. Thus, a sandstone may lie 300 feet below sea level in a particular area, but dip so as to be 500 feet below sea level in an adjoining county. Exceptionally, the rocks lie in gentle folds. The attitude or "lie" of the strata constitutes, broadly, their "*structure*;" and the determination of this is of utmost importance in the discovery and development of an oil field.

The geology of the State is described elsewhere<sup>1</sup> in a more detailed manner; it will be sufficient in this report to discuss its significant features, briefly, under the headings just mentioned.

#### STRATIGRAPHY.

The accompanying sections indicating the order and character of the strata were first published by Bain<sup>2</sup> in 1907. They are modified by the writer to agree with later data and conclusions.

Overlying the consolidated rocks of the State except in the extreme southern and the northwestern counties, there is a varying thickness of glacial deposits or "*drift*." These clays, sands, gravels, etc., are commonly encountered in drilling before hard rock is reached. Locally, they contain gas and Bain says:

"Natural gas is found in these deposits in small quantity at a number of points throughout the State. Such wells are, or have been, known near Champaign, Princeton, Colchester, Wapella, Heyworth, and elsewhere. The pressure is usually slight and the life of the individual wells is usually short. While it is not possible in every case to absolutely exclude the possibility of these wells representing leakage from lower reservoirs, a sufficient explanation of them is believed to be found in the decay of woody material buried in the drift itself. These wells are characteristically difficult to maintain owing to sand clogging the pipes."

The section for southern Illinois is most important in the present study. The formations yielding oil and gas production are indicated by italic and occur chiefly in the Carboniferous system. Possible oil "sands" are suggested also in the Ordovician and Silurian systems, especially in central and northern Illinois.

<sup>1</sup> Weller, Stuart, *The Geological Map of Illinois*: Bull. Ill. State Geol. Survey No. 6, 1907.

<sup>2</sup> Bain, H. Foster, *Petroleum Fields in Illinois in 1907*: Bull. Ill. State Geol. Survey No. 8, pp. 273-312.

*Northern Illinois section.*

This section is intended to be representative for that portion of the State lying north of Rock Island, LaSalle, and Kankakee.

Pennsylvanian.	McLeansboro. Limestones and nodular calcareous shales in upper part and sandstone at the base. Thickness 300 feet.
	Carbondale. Coal, shale, sandstone and limestone. Thickness 200 feet.
	Pottsville. Shale. Thickness 2 to 20 feet.
	Unconformity.
Devonian.....	Limestone. Thickness 125 feet.
	Unconformity.
Silurian.....	Niagara. Dolomite. Thickness 20 to 400 feet. <i>Contains frequent seepages of bitumen in the vicinity of Chicago.</i>
	Unconformity.
Ordovician.....	Cincinnatian (Maquoketa). Shales and limestone. Thickness 50 to 225 feet.
	Unconformity.
	Galena-Trenton. Mainly dolomite; a little limestone and shale at the base. Thickness 230 to 450 feet. <i>A very persistent "oil" rock or petroliferous shale in the lower portion.</i>
	St. Peter. Sandstone, friable. Thickness 100 to 220 feet. Heavily water-bearing.
	Lower Magnesian. Dolomitic limestone. Penetrated to 845 feet. All but upper part known from well records; rests on Potsdam sandstone, known only from well records.

*Central Illinois section.*

For the region south of Rock Island, LaSalle, and Kankakee, and north of the Missouri river and Marshall, Clark county.

Pennsylvanian.	McLeansboro. Shales, sandstones, thin limestones and coals. Rocks between top of Herrin (No. 6) coal and bed rock. Thickness 125 to 700 feet.
	Carbondale. Coals, shales and sandstones. Rocks between the base of the Murphysboro (No. 2) coal and the top of the Herrin Coal. Thickness 100 to 300 feet.
	Pottsville. Sandstones, thin shales and coals. Thickness 150 to 200 feet. <i>Carlinsville oil-sand, Macoupin county; small amounts of oil and gas reported but position not certain.</i>
	Unconformity.
Mississippian...	Birdsville and Tribune (Chester). Irregular thickness of sandstone, shale and limestone, recognized in a few borings; generally absent in this territory. Thickness 0 to 50 feet.
	Sta. Genevieve, St. Louis, and Salem. Limestone, non-magnesian, partly cherty and partly oolitic. Thickness 225 to 400 feet.
	Osage (Burlington, Keokuk and Warsaw). Shales and limestone, the latter often cherty. Thickness 100 to 400 feet. <i>Crude petroleum in geodes near top of the Keokuk.</i>
	Kinderhook. Shales, limestones, and sandstones. Thickness 40 to 120 feet.
Devonian.....	Unconformity.
	Upper Devonian. Shale. Thickness 0 to 130 feet.
	Hamilton. Limestones. Thickness 0 to 100 feet.
Silurian.....	Unconformity.
	Niagara. Dolomite. Thickness 50 to 150 feet. <i>Gas at Pittsfield, Pike county and oil seepage in Calhoun county.</i>
Ordovician..	Unconformity.
	Cincinnatian (Maquoketa). Shales. Thickness 40 to 200 feet.
	Galena-Trenton. Dolomite. Thickness 200 to 400 feet. <i>Oil seepage in Calhoun county.</i>
	St. Peter. Sandstone. Thickness 120 to 170 feet. Lower Magnesian. Dolomitic limestone. Penetrated to 700 feet.

*Southern Illinois section.*

For the area lying south of a line drawn eastward from the mouth of the Missouri river to Marshall, Illinois, and the State line.

Quaternary....	Glacial till, sand, and gravel; loess and alluvium. Present as surface rocks everywhere except in northwest and extreme south. Thickness, 30 to 225+ feet.
Tertiary.....	Lafayette, LaGrange and Porters Creek. Clays, sands, gravel, and ferruginous conglomerate. Occurs only in extreme south. Thickness 250 feet.
Cretaceous.....	Ripley. Clay and sand. Occurs only in extreme south. Thickness 20 to 40 feet.

*Southern Illinois Section—Concluded.*

Pennsylvanian.	McLeansboro formation. Shales, sandstones, thin limestones and coals. Rocks between top of Herrin (No. 6) coal, and bed rock. Thickness 500 to 1,000 feet. <i>Contains the oil and gas sands of the Westfield, Siggins and Casey pools.</i>
	Carbondale formation. Coals, shales and sandstones. Rocks between the base of Murphysboro (No. 2) coal and the top of the Herrin coal. Thickness about 375 feet. <i>Lower "pay," Johnson township pool, Clark county.</i>
Mississippian ..	Pottsville formation. Sandstone, some thin shales and coals. Thickness 300 to 700 feet. <i>Includes the Buchanan sand (base), and Bridgeport sand (top), Lawrence county; Robinson sand (top), Crawford county; oil sand of Litchfield, Montgomery county; probably the Princeton, Ind., oil sand.</i>
	Unconformity.
Mississippian ..	Birdsville and Tribune (Chester). Sandstones, shale, and limestones; usually six limestones with three well defined beds (non-cherty) and generally with red shale at the base. Thickness 770 feet. <i>"Gas" and Kirkwood sands, Lawrence county; gas sand, Vincennes, Ind.; Sparta sand, Randolph county; Stein and Benoist sands, Marion county (the latter is the equivalent of the Kirkwood sand); Lindley gas sand, Bond county; Carlyle sand, Clinton county and the Oakland City sand, Pike county, Ind. Tracey sand, Lawrence county and probably Denny sand, Perry county (show of oil).</i>
	Cypress. Sandstone, massive, coarse-grained; fairly regular in a thickness of 80 to 150 feet in southwestern Illinois; very irregular and usually thin in southeastern Illinois. The Cypress sandstone is absent in the oil fields of Lawrence county.
Mississippian ..	Unconformity.
	Sta. Genevieve. Limestone, mostly oolitic and very cross-bedded. Thickness, 80 to 100 feet. <i>Mc Closky sand, Lawrence county.</i>
Mississippian ..	St. Louis and Salem (Spergen). Limestone, dense becoming oolitic in lower division. Thickness 320 feet. <i>Show of oil reported at base in the Lawrence county pool near Bridgeport.</i>
	Osage (Burlington, Keokuk and Warsaw). Shale above and coarse-grained limestone with chert below. Thickness 440 feet.
Mississippian ..	Kinderhook. Shale and shaly limestone, red. Thickness 60 feet.
	Unconformity.
Devonian .....	Upper Devonian (Sweetland Creek). Shale. Thickness 50 to 60 feet.
	Hamilton. Limestone. Thickness about 100 feet.
Devonian .....	Onondaga (Grand Tower). Limestone. Thickness 155 feet.
	Oriskany (Clear Creek). Chert and limestone. Thickness 200 to 240 feet.
Devonian .....	Helderberg (New Scotland). Limestone. Thickness 165 feet.
	Unconformity.
Silurian .....	Alexandrian (Sexton Creek, Edgewood and Girardeau). Limestone, some shale. Thickness 116 feet.
Ordovician ....	Richmond (Cincinnati). Orchard Creek, shale, Thebes sandstone, Fernvale limestone. Thickness about 100 feet.
	Galena-Kimmswick. Non-dolomitic limestone. Thickness 510 feet recorded.
Ordovician ....	St. Peter. Sandstone. 120 feet recorded.
	Lower Magnesian. Mostly dolomitic limestone with occasional thin layers of sand and shale. 545 feet recorded.

## AREAL EXTENT OF THE FORMATIONS AND OIL SANDS.

The extent of the main geologic systems in Illinois is suggested by the map already published.<sup>1</sup> Of particular interest here is the extent of the formations which are, or may be, productive of oil and gas. Passing from the youngest to the oldest or lowest rocks, by far the most important are the Pennsylvanian and Mississippian formations; although the Silurian and Ordovician rocks deserve brief mention. The Carboniferous include the Pennsylvanian ("Coal Measures") series and the underlying Mississippian.

The Pennsylvanian rocks occupy 42,000 square miles in the heart of Illinois. They are absent from that part of the State lying north of an irregular line drawn eastward from Rock Island. The boundary swings southward from near the mouth of Kankakee river to a point west of Paxton, thence northeast to the State line near Watseka. South of this line the Pennsylvanian rocks continue from Illinois into Indiana and Kentucky. The southern and western margins of the area follow the trend of the Ohio and the Mississippi at a distance of 10 to 25 miles. The Pennsylvanian rocks of the southern area are thickest and most

<sup>1</sup> Loc. cit.

complete. They are thinner in the central section, chiefly because of the thinning away of the Pottsville formations with their included oil sands. North and northwest of Springfield these rocks are essentially absent but they are present eastward from Decatur. A thin layer occurs also in the vicinity of Rock Island. The lowest beds of the Pennsylvanian are lacking along the western boundary of the State from Randolph county northward to Rock Island. It thus appears that the oil sands of the Pottsville are most promising in the central and southeastern parts of the State. Even there, the Pottsville may be limited to areas from which the upper Chester formations have been eroded. The higher sands may be found present practically anywhere except at the thin edge of the Pennsylvanian area. The horizontal extent of the various sands is not known accurately, even within the drilled areas, because of lack of good well records and consequent difficulty of identifying the sands.

The Pennsylvanian rocks above the Pottsville are subdivided into upper and middle parts, the Pottsville constituting the basal portion. The upper part is specifically known as the McLeansboro and the middle part, the Carbondale.

The McLeansboro formation includes all the rocks between the top of the Herrin or No. 6 coal and the top of the Pennsylvanian series. A thin layer of shale usually overlies the Herrin coal followed by a very persistent limestone. The limestone contains a small fossil known as the *Fusulina*, which is about the size of a large grain of wheat. It tapers at both ends and a cross-section has the appearance of concentric circles. Dr. Udden has been able to distinguish fragments of the fossil in a quantity of chopped, or ground, well samples taken from a churn drill hole. A red shale is often found from 40 to 200 feet above the Herrin coal. This red bed has been noted in Peoria county by Dr. Udden; in Fulton, Sangamon, and Clark counties by T. E. Savage; in LaSalle county by Gilbert Cady, and in White, Gallatin, and Saline counties by F. W. DeWolf. It occurs high up in many well records in Crawford and Lawrence counties but low in other sections of the State. The *Fusulina* limestone, red shale, and top of the No. 6 coal are the most important beds in the McLeansboro and the absence of any two of them still leaves a possible means of determination for the base of this division. There are usually 300 feet of shale, clay, some sand, local coal beds, etc., between the *Fusulina* limestone and the Shoal Creek limestone. The maximum thickness of the formation in southeastern Illinois is about 1,000 feet.

The Carbondale includes the rocks from the Murphysboro (No. 2) coal to the top of the Herrin (No. 6) coal. Shale constitutes the major part of the division with much micaceous sandstone in the basal portion. There are several beds of limestone underlying the Herrin coal. The shales are soft and cavy and often very sandy, so closely are they associated with the massive Pottsville sandstones beneath. The sandstones are sometimes coarse above the Murphysboro coal. This coal is often absent and a thin limestone and more often shale, separates the Carbondale and Pottsville. There is a good bed of sand usually under the Herrin coal. The productive oil-sand north of Centralia is thought to correspond to this and therefore lies in the Carbondale. The most important beds of this division are the Herrin coal at the top, the Murphys-

boro coal at the base and the Harrisburg (No. 5) coal between. These coals are widely distributed and give good opportunity of interpreting this division. The formation is about 225 feet thick in the northern part of the coal area of Illinois, and 300 to 450 feet in southern counties.

The Casey sands, or the shallow sands of Clark, Coles, Cumberland, and Edgar counties and the 400-foot sands of the Robinson pool in Crawford county, occur well up in the Pennsylvanian. They are interbedded with coals, thin limestones, and prevailing shales. They have been widely drilled along the LaSalle anticline and have been found productive of oil and some gas. Their shallowness and the ease of drilling through the overlying formations has caused their thorough exploitation. These sands are fairly widespread over the southern and central portions of Illinois but have been found commercially productive in but one other locality beyond the LaSalle fold. The original oil seep in the mine north of Centralia, which gave impetus to the development of the Marion county oil field, is from a sand immediately underlying the Herrin coal. This sand was found productive in several wells north of Centralia. As soon as the position of the Herrin coal is definitely learned in the main oil territory, it will perhaps be possible to identify and correlate this sand.

The Pottsville sands at the base of the Pennsylvanian have been studied in Illinois along their outcrop by David White. From the fossils they are believed to correspond in age to the Pottsville rocks of the Appalachian region. The oil and gas sand of Litchfield apparently belongs in the Pottsville. This is perhaps the only instance in which these formations are productive of oil outside the Buchanan sand of the southeastern Illinois fields. The Pottsville sandstones of the central and southern portions of the State, especially in the deeper part of the Illinois basin and over the LaSalle anticline, are conspicuous for their massiveness. Since they are interbedded with shales, however, the top of the formation is difficult to identify, owing to the merging of the sands with overlying shaley rocks. The correlations in this report were based, for the most part, upon the top of the thick sand immediately underlying the conspicuously shaley rocks. These sands are fairly well saturated with salt water wherever they have been encountered. They commonly lack conspicuous limestone strata, thus differing distinctly from the underlying Mississippian rocks. In the southern part of the State the Pottsville rocks are as much as 700 feet thick.

The Mississippian series lying in the Carboniferous, next below the Pennsylvanian ("Coal Measures") contains important oil sands whose exact extent is not accurately known. The outcrops of the Mississippian rocks occur around the southern and western borders of the State, and exposures show that the full thickness is not everywhere present. The thickest development occurs in the southern area. It wedges out to the north so its edge is overlapped and concealed by the Pennsylvanian rocks. The Mississippian oil sands, as shown by the table, occur in the upper or Chester members. They are the most productive sands and have produced most of the oil from the eastern Illinois fields.

The top of the Chester is not positively recognized in drill records. The correlations in this report were based upon the limestone immediately underlying the massive Pottsville sandstone. It is succeeded by



other limestones interlain with strata of sandstones and red shales. Weller says:<sup>1</sup>

From most of the literature on the subject one gains the impression that the Chester is dominantly a limestone formation, but in working over the area occupied by the beds in the field, one is impressed with the fact that it is in a large part sandstone. Nowhere in that part of Illinois occupied by these beds, is the limestone element in the formation the most conspicuous feature, except along the Mississippi river bluffs above Chester, from that city to the point where the Cypress sandstone outcrop begins. It is probable that where the limestone has its greatest development, not more than one-third of the total thickness is calcareous, and over a large part of the area the thickness of the limestones probably does not exceed one-fifth of the entire thickness.

The best region in which to study the succession of beds in the Chester, is in the Mississippi river bluffs above and below the city of Chester. This section shows an alternation of chiefly calcareous and arenaceous formations, there being three conspicuous limestones and three sandstones. The limestones are frequently interbedded with calcareous shales, and the sandstones frequently become arenaceous shales or at times clay shales.

The lowest member of the "group," above the Cypress sandstone, is a limestone and shale formation attaining a maximum thickness of approximately 250 feet at and above Chester. In its lower portion it includes considerable beds of calcareous and clay shales, a bed of variegated red and blue shale being commonly present near the base. In the upper part of this member is a great limestone ledge about 100 feet in thickness, with occasional thin shaly partings, which furnishes the quarry rock at the Southern Illinois penitentiary, at Menard. The great mass of the fauna of the "Chester group" in Illinois has been described from this lower, calcareous member of the formation as a whole.

The second member of the "group" is a sandstone or shale, the shale being most conspicuous in the more northern part of the area, while to the south it is almost wholly a sandstone similar to the Cypress in character, but usually thinner bedded and not infrequently more or less of an arenaceous shale. This division attains a thickness of about 80 feet. The third is again a limestone which is apparently more impure than most of the beds of the lower division. It is much less fossiliferous than the lower division and the fossils are such as to give it definite faunal characters which can be recognized over wide areas. Its thickness near Chester is about 60 feet. The fourth member is again a sandstone similar to the earlier sandstone beds, and attains a thickness of 65 feet. The fifth member is a limestone similar to limestone No. 2, in lithologic characters, and is usually almost or quite unfossiliferous. Its thickness is about 35 feet.

It seems to be altogether probable that these three limestone beds of the Chester "group" can be differentiated and mapped throughout the faulted area in the southern part of the State, and that by means of them the structure can be worked out in much detail. In the final work upon these beds it will probably be found to be expedient to distinguish each of these six members of the Chester by distinct formation names, just as the Cypress sandstone is now distinguished.

Dr. Weller has kindly furnished the following general section of the Chester rocks from the exposures along the Mississippi bluffs in Randolph and Monroe counties, Illinois:

<sup>1</sup> Weller, Stuart, *The Geological Map of Illinois*. Bull. Ill. State Geol. Survey No. 6, 1907.

*General section of the Chester (above the Cypress sandstone).*

Formations.	Thickness in feet.
<b>Birdsville:</b>	
Rockwood sandstone .....	100
Limestone (No. 3) .....	20
Arenaceous shale or shaly sandstone .....	47
Sandstone .....	10
Arenaceous shale or shaly sandstone .....	33
Limestone (No. 2) .....	54
Shale .....	42
Limestone (persistent bed) .....	8
Shale (in some places a bed of sandstone occurs in this shale of variable thickness from 0-20 feet) .....	36
Limestone .....	4
Shale .....	4
<b>Tribune:</b>	
Limestone (No. 1), heavy bedded .....	80
Interval of uncertain character, lower part probably shale and upper part limestone .....	30
Limestone (fossils) .....	49
Probably shale—not exposed .....	38
Variegated red and green shales .....	15
Not exposed .....	5
Limestone (fossils) .....	20
Shale, thin streak .....	15
Limestone .....	25
Shale, thin strata .....	25
Unknown .....	184
Cypress sandstone .....	184
Total depth to bottom of Cypress .....	769

The thinning away of the Chester beds to the north causes the absence of important oil and gas sands in that part of the State. No Chester has been found present west of a line from Decatur to O'Fallon. Probably there is little Chester north of a line between Decatur and Springfield.

Pre-Chester sands of the Carboniferous or those below the rocks just described are not present in the main fields. These rocks have been very little prospected elsewhere and are not known to be productive in other sections of the State. Regardless of its close association with the Chester proper, its wide extent and porous character, the Cypress sandstone is not looked upon as holding much promise.

The Chester group is limited to the Tribune formation because of upper and lower erosion periods in which the Birdsville or upper division and the Cypress or lower sandstone member have entirely disappeared.

The Ste. Genevieve limestone underlies the Cypress and is found to be highly productive of oil in Lawrence county. This bed is mostly limestone but conspicuously oolitic and soft, which appears to be a recurrence of the same phase of the lower Salem limestone. Its maximum thickness in the oil fields is 85 feet while Weller gives 100 feet for Monroe county. The McClosky sand corresponds to the Ste. Genevieve. Below that, in the Carboniferous, are no known beds that are either encouraging or discouraging as possible sources of oil. A very recent report, however, describes the finding of oil 300 feet below the top of the St. Louis limestone on the Hardacre farm, N. E.  $\frac{1}{4}$  Sec. 10, T. 3 N., R. 12 W., Lawrence township, Lawrence county. This may indicate an oil horizon at this position in the series. Petroleum has also been found in the geode bed of the Keokuk. This is not believed, however, to be especially significant.

The Silurian includes the Niagara limestone formation, which in northern Illinois is dolomitic, and locally contains bituminous deposits. It offers some slight chance of oil production.

The Ordovician system includes the Galena-Kimmswick limestone, along with others of little importance in this connection. Over it lie the Richmond-Maquoketa shales which, in the northwest counties, are rich in disseminated oil. The Galena-Kimmswick is known to be 300-400 feet thick in the north; 250 feet thick in Calhoun and Jersey counties; at least 100 feet in southern Illinois. It doubtless underlies the younger rocks of the Illinois basin.

### STRUCTURE.

Throughout the central portion of Illinois there is a spoon-shaped basin with its long axis extending from the north line of Stephenson county past LaSalle, Lovington, and continuing to the southwest county of Indiana. The deepest part of the basin lies in the vicinity of Wayne, Hamilton, Edwards, and White counties, where the rocks are comparatively flat. Towards this basin, with local exceptions, all the rocks of Illinois and of western Indiana dip gently. The sides of the "spoon" show some minor longitudinal folds. The most important is the LaSalle anticline (See Plate IB) which runs from Freeport to a point just east of LaSalle, and continues in a southeasterly direction through the oil field and into Indiana. From western Illinois the rocks dip gently eastward until the Duquoin anticline is reached but then dip much more rapidly to the axis. They rise from this line to the LaSalle anticline, decline gently, and then rise again into Indiana. The dips of the southern rocks into the basin are locally 100 feet or more to the mile. The anticlines and other minor irregularities influence the accumulation of oil and gas as explained in a previous discussion, and, therefore, are of special importance. They become less conspicuous towards northern Illinois; consequently that part of the State does not offer as promising structural features, for the accumulation of oil as the southern part and it moreover, entirely lacks the Pennsylvanian and Mississippian oil sands. Oil if present must be found in the older formations.

## STRATIGRAPHY OF CRAWFORD AND LAWRENCE COUNTIES.

### GENERAL STATEMENT.

The stratigraphy of Crawford and Lawrence counties is revealed by the study of two sets of columnar sections comprising the most representative borings in the two counties. Three of the records, 2, 5, and 10 of the Lawrence county and all of the logs of the Crawford county sections are precise studies of well samples collected by the writer and examined by Dr. J. A. Udden.

### CRAWFORD COUNTY.

All the penetrated rocks in the producing areas of Crawford county belong to the Pennsylvanian series. These rocks are overlain by a varying thickness of drift. The Pennsylvanian series are represented by about 480 feet of the McLeansboro, 300 feet of the Carbondale, and about 100 feet of the Pottsville formations. The rocks are all of sedi-

mentary origin being principally shales with variable intergradations of sandstones, limestones and coal. The columnar section of Crawford county is made up of logs from several localities, several of which are outside the area covered by this report. They are plotted in order from south to north in Plate II. The top of the limestone over the Herrin coal, which may be called the "*Fusulina*" limestone for the lack of a geographical name, is used as a key line for the columnar section. All the records are plotted with respect to this line and are presented herewith, corresponding by number to those printed on Plate II. All of the following logs were compiled by Dr. J. A. Udden from a detailed examination of well samples saved by the Ohio Oil Company.

## LOGS.

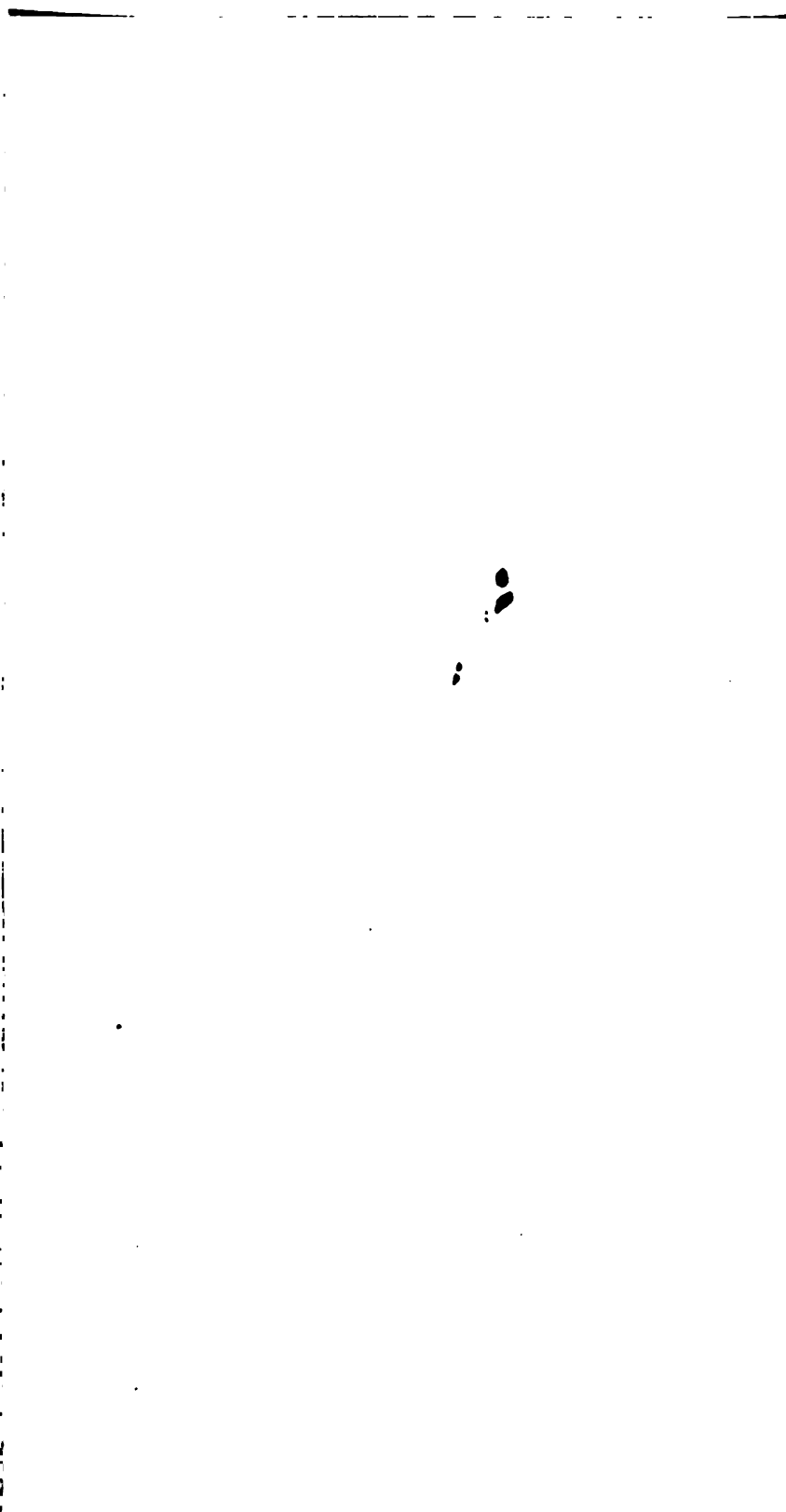
No. 1.—*M. Shultz*, No. 7.

Location—SE.  $\frac{1}{4}$  sec. 7, T. 7 N., R. 14 W., Oblong Township.  
Elevation—485 feet.

	Depth in feet.	
	From	To
Unknown .....	0	185
Light gray micaceous sandstone or sandy shale. The laminae are from one-twentieth to one-eighth of an inch in thickness...	185	190
Gray micaceous shaly sandstone, with carbonaceous foliations showing leaf fragments and needle-like impressions. Biotite scales noted .....	190	200
Gray micaceous shaly sandstone and black carbonaceous shale...	200	205
Gray micaceous shaly sandstone, with carbonaceous foliations...	205	210
Gray calcareous limestone, partly organic fragmental, apparently concretionary. A fragment of a black silicified piece of a fern stem noted .....	210	215
Light gray sandy shale, micaceous .....	215	220
Gray sandstone, fine in texture, and with a calcareous matrix...	220	230
Light gray, sandy shale .....	230	250
Light gray sandy and micaceous shale and some calcareous concretionary material .....	250	255
Dark micaceous shale and micaceous gray sandstone .....	255	260
Gray, stony shale .....	260	265
Black fissile shale, "miners slate," and greenish fire clay .....	265	270
Gray sandy shale and black shale .....	270	275
Greenish gray shale of fine texture .....	275	280
Light gray shaly sandstone and shale, biotitic .....	280	285
Light gray sandy and micaceous shale, with some dark and soft marly material .....	285	290
Gray sandy shale .....	290	295
Dark gray sandy shale .....	295	300
Dark gray sandy and micaceous, stony shale .....	300	320
Dark gray stony shale and green fire clay .....	320	325
Dark gray shale of fine texture .....	325	335
Dark shale, with impressions of narrow leaf-like forms of vegetation and of fragments of thin shells .....	335	340
"Miners' slate," black, and some coaly shale .....	340	345
Gray sandstone, moderately coarse .....	345	350
Light gray sandy shale, with layers of shaly sandstone, which contains spherules of brown carbonate of iron .....	350	355
Gray calcareous limestone .....	355	360
Gray limestone and some black shale. <i>Chetetes milleporaceus</i> noted .....	360	365
Micaceous gray sandy shale or sandstone with some concretionary limestone .....	365	370
Gray micaceous sandstone and sandy shale .....	370	380
Gray soft shaly sandstone. Some fragments have a brownish tint .....	380	390
Gray shale of fine texture .....	390	395
Gray sandy shale, light .....	395	400
Micaceous and sandy stiff shale, light gray, with narrow impressions, carbonaceous, of small leaves and bits of brown tests of crustaceans. Many fragments of coal .....	400	405
Medium gray stiff shale, fine texture with many fragments of coal .....	405	410
Gray shale of fine texture, fossil fragments, bits .....	410	415
Shale, sandy, micaceous greenish gray, with leaf imprints .....	415	420
Shale, sandy, micaceous and greenish gray with small black fragments of vegetation .....	420	425

## Logs—Continued.

	Depth in feet.	
	From	To
Sandstone, fine in texture, micaceous, shaly light gray.....	425	440
Gray shale of fine texture, greenish, only very slightly micaceous	440	445
Sandy shale, gray, micaceous, with bits of vegetation.....	445	450
Light gray shale, stony .....	450	455
Shale, greenish gray, micaceous .....	455	470
Dark greenish gray shale, of fine, even texture.....	470	475
Coal and fine gray shale or fire clay .....	475	480
Limestone, some dark and compact with very slow effervescence, some light, calcareous, crystalline cleavage like that in crinoid stems. Also some limestone and shale, with small spherules of clay iron stone, magnetic after fusion, $\frac{1}{4}$ - $\frac{1}{2}$ mm. in diameter. Wood in coaly pyrite.....	480	485
Shaly sandstone of light gray color .....	485	495
Dark gray stony micaceous shale .....	495	500
Gray sandstone and shale .....	500	505
Gray shale, stiff, of fine texture .....	505	510
Dark gray micaceous shale .....	510	515
Gray dark shale, stiff, micaceous .....	515	520
Gray limestone and coal, limestone is organic fragmental. Crinoid joints noted .....	520	525
Coal and some gray fire clay .....	525	530
Gray sandstone with a little micaceous shale .....	530	540
Gray sandstone with sandy shale .....	540	545
Gray sandstone, fine .....	545	550
Gray micaceous stony, (sandy) shale .....	550	570
Gray shaly fire clay or shale .....	570	575
Dark shale and a little coal. Shale, fine and carbonaceous.....	575	580
Dark shale, coal and fire clay .....	580	585
Black limestone (almost), effervescing slowly, with imbedded organic fragments and pyrites, yellow. Green grains or fillings in limestone, crinoid stems, fragments of shells, and spines, <i>Fusulina</i> fossils .....	585	590
Dark gray stiff micaceous shale .....	590	595
Gray micaceous shaly sandstone and shale .....	595	600
Shaly sandstone, gray, micaceous .....	600	605
Dark calcareous limestone, with <i>Athyris</i> , crinoid stems, spines, in copious small fragments, and coal in coarse and fine fragments	605	610
Black shale, gray shale, fire clay and coal .....	610	615
Gray sandstone and black shale .....	615	620
Gray sandy shale .....	620	625
Sandstone, light gray, of fine texture thinly laminated, some yellow concretionary material .....	625	630
Gray shaly sandstone, micaceous .....	635	640
Gray sandy shale and fire clay .....	640	645
Gray sandy shale .....	645	650
Gray shale of fine texture .....	650	660
Gray sandy shale with straight laminations .....	660	665
Black shale, with gray blotches, laminated, "Miners' slate" .....	665	670
Black shale and dark gray shale .....	670	675
Light greenish gray shale of fine texture .....	675	685
Black shale, almost slaty .....	685	690
Black stiff shale of fine texture .....	690	695
Dark gray shale .....	695	700
Gray sandy shale .....	700	705
Gray stiff shale, and some earthy shale .....	705	710
Dark gray earthy shale and light gray sandstone .....	710	715
Dark gray laminated shale .....	715	725
Dark gray, laminated, micaceous shale, with imprints of leaves and bits of vegetation .....	725	730
Gray shale, sandy and micaceous, with imprints of fragments of leaves .....	730	735
Dark, very dark shale, micaceous .....	735	740
Black shale, short "miner's slate" .....	740	745
Black shale, short "miner's slate, with pyrites .....	745	750
Gray sandstone with some coal .....	750	755
Sandstone, shale, laminated, dark gray .....	755	760
Dark gray shale .....	760	765
Shale, dark gray, some dark fire clay, coal .....	765	770
Coal, hardly anything else, large sample .....	770	775
Light gray sandy fire clay and coal .....	775	780
Light gray micaceous pyritiferous sandstone and some dark shale	780	785
Light gray micaceous sandstone .....	785	790
Micaceous light gray sandstone (and shale) .....	790	795
Sandy gray shale and fire clay, dark, and showing slickensides..	795	800
Dark gray shale, fine in texture, with some slickensided pieces...	800	805
Black "miners' slate" .....	805	810
Black coaly shale, with a light gray rock composed of clay and con- taining small spherules of clay iron stone $\frac{1}{4}$ - $\frac{1}{2}$ mm. in diameter	810	815



29

100 AM

## Logs—Continued.

	Depth in feet.	
	From	To
Dark gray shale with some fine small flakes of mica.....	815	820
Coal and some dark shale, with fragments of brown clay iron stone	820	825
Fire clay, shale, dark and light gray sandstone.....	825	830
Dark gray shale and shaly light gray sandstone .....	830	835
Black shale, coal and fire clay .....	835	840
Gray sandy shale and black shale, some coal .....	840	845
Gray sandy shale, black shale, some coal .....	845	850
Black and gray shale, laminated (?) .....	850	855
Dark gray shale, micaceous, and sandy light gray shale.....	855	860
Black shale and gray shale, micaceous, imprints of leaves.....	860	865
Gray and black shale, some of the black shale with thin laminae of coal .....	865	870
Gray micaceous and sandy shale and shaly sandstone.....	870	875
Black coal shale ("miners' slate") some impure coal and some fire clay .....	875	880
Dark gray shale, stiff .....	880	885
Some gray shale, some shaly sandstone, some cloddy limestone with crinoid stems and other fossils in fragments. Much of the sample is a stony, sandy fireclay, in which are imbedded spherules of clay iron stone $\frac{1}{4}$ - $\frac{1}{2}$ mm. in diameter. On grinding and polishing some fragments containing these spherules a center of pyrite was seen in some of the spherules. The imbedded spherules lie quite close together, giving the appearance of oolitic rock.....	885	890
Gray micaceous sandy shale and fire clay.....	890	895
Gray shaly micaceous sandstone or sandy shale.....	895	905
Gray shale micaceous sandstone.....	905	910
Gray sandstone, foliated, with carbonaceous black foliations.....	910	920
Yellowish sandstone, ground up, floats on water.....	920	925
Gray sand, less oily. $\frac{1}{4}$ - $\frac{1}{2}$ mm.		

## No. 2.—O. F. Edwards, No. 15. \

Location—SE.  $\frac{1}{4}$  sec. 7, Oblong Township.

Elevation—485 feet.

	Depth in feet.	
	From	To
Loess or silt, with some sand.....	0	5
Boulder clay, thoroughly leached.....	5	15
Yellow boulder clay, calcareous.....	15	20
Yellowish gray calcareous boulder clay with limestone pebbles...	20	25
Sand and gravel washed from boulder clay.....	25	40
Gray boulder clay.....	40	45
Sand and gravel, washed from boulder clay.....	45	50
Mostly sandstone, fairly coarse, with some limestone with fragments of fossils, probably <i>Productus semireticulatus</i> , <i>Retzia</i> , <i>Rhomopora lepidodendroides</i> , <i>Fistulipora</i> , <i>Tubipora</i> , and joints of crinoid stems.....	50	55
Sandstone, gray, micaceous, friable.....	55	65
Gray shale, slightly micaceous, of comparatively loose consistency "Dirt bed" material, dark crumbling silt clay, with some coal....	65	85
Impure fire clay and shale, much coal, and concretions of lime and of carbonate of iron.....	85	90
Dark shale.....	90	95
Gray shale, micaceous.....	95	100
Gray shale and marly material. The latter contained the pygidium of a small trilobite, fragments of bryozoa, and joints of crinoid stems .....	100	105
Almost black shale, containing small ostracods, one-thirtieth of an inch in length and an impression of some smooth flat objects, having the shape of an equilateral triangle with perfectly straight sides measuring a sixth of an inch.....	105	110
Black shale with impressions of fucoidal bands a tenth of an inch in width. Part of sample a dark limestone with crinoid stems, a small pentagonal crinoid plate, and a small brachiopod ( <i>Ambocoela umbonata</i> ).....	110	115
Dark limestone, of characteristic appearance of a "clod" limestone (i. e., small limestone overlying a coal), clay, fissile, shale and coal. The limestone has the same fossils as in the previous number .....	115	120
Dark limestone as above, with irregularly bending <i>Ammodiscus</i> tubes about one-fifth inch in diameter, also coal and some fire clay. The coal probably lies at a depth of about 125 feet and is underlaid by the fire clay.....	120	125
Gray micaceous sandstone.....	125	130
Micaceous shaly sandstone and sandy shale.....	130	140
	140	145



## Logs—Continued.

	Depth in feet.	
	From	To
Micaceous shaly sandstone.....	145	150
Micaceous shaly sandstone and sandy shale.....	150	155
Coal, some "clod" and some shale.....	155	160
Gray micaceous sandstone.....	160	165
Gray micaceous sandstone with one large piece of coal and one large piece of black shale, containing fragments of some thin shells, probably a <i>Lingula</i> .....	165	170
Gray sandstone, with some calcareous rock.....	170	175
Shaly micaceous gray sandstone.....	175	180
Shaly micaceous gray sandstone, with some small fragments of a calcareous rock.....	180	185
Dark gray sandy shale with large flakes of mica.....	185	190
Dark gray micaceous shale.....	190	195
Gray micaceous shale, with shreds of vegetation.....	195	200
Limestone, compact, yellowish white and dark gray, containing crinoid stems and fragments of other unidentified fossils. Splits into thin fragments, and has a sort of waxy lustre.....	200	210
Gray shale, somewhat micaceous.....	210	215
Fire clay, shale, and sandstone.....	215	220
Mostly sandstone having a calcareous matrix and a few imbedded organic calcareous fragments.....	220	225
Sandy shale or shaly sandstone, with some black mica.....	225	230
Gray sandstone.....	230	235
Gray sandstone, laminated, with thin layers of carbonaceous material.....	235	240
Dark gray sandstone, laminated, micaceous, with thin carbonaceous foliations, and with a calcareous cement.....	240	245
Sandstone, dark gray, shaly, biotitic. Some fragments show yellow specks of presumably concretionary iron carbonate, other fragments are closely studded with minute grains of pyrite....	245	250
Some sandstone like the previous, dark shale and fire clay....	250	255
Dark shale and sandstone, both biotitic.....	255	260
Black shale and some fragments of a coarse shell breccia, containing crinoid stems.....	260	270
Gray sandstone.....	270	275
Gray sandstone, with a brown, slowly effervescing sandstone....	275	280
Gray sandstone, with a brown, slowly effervescing sandstone, with more of the brown rock, which seems to have a concretionary (oolitic) structure and consists of mainly carbonate of iron with some calcareous grains.....	280	285
Gray sandstone, micaceous.....	285	295
Gray sandstone, micaceous, with some shaly sandstone.....	295	300
Gray sandstone, micaceous.....	300	310
Gray shale.....	310	315
Gray shale with small ostracods, and a spiral <i>Ammodiscus</i> .....	315	320
Gray shale, with narrow, ribbon-shaped impressions of vegetation, ostracods and a spiral <i>Ammodiscus</i> .....	320	325
Gray sandy shale and micaceous sandstone.....	325	330
Micaceous sandstone and coarse gray shale.....	330	335
Coarse sandstone.....	335	340
Sandstone, with yellow grains (concretionary) of carbonate of iron, larger than the sand grains.....	340	345
Gray shale with some very compact fragments of carbonate of lime concretions.....	345	350
Faintly yellowish gray limestone, splitting into thin chips, with many unrecognizable fragments of organic origin.....	350	360
Limestone, like the preceding, with a brachiopod shell fragment, a <i>Zaphrentis</i> , and joints of crinoid stems. Also some dark gray shale.....	360	365
Greenish gray shale.....	365	370
Gray micaceous sandstone and shale.....	370	385
Gray shale of fine texture.....	385	395
Bluish gray sandstone.....	395	400
Shale, mostly dark gray, and of fine texture.....	400	405
Sandstone and sandy shale.....	405	410
Micaceous sandstone and shale.....	410	415
Gray silty shale.....	415	420
Dark gray shale.....	420	425
Gray sandstone and shale.....	425	430
Gray shale and some impure coal.....	430	435
Micaceous gray shale, with fragments of concretions of carbonate of iron.....	435	440
Gray shale.....	440	445
Gray shale or fire clay.....	445	450
Gray shale, stony and dark, micaceous.....	450	455
Some gray shale like the above. But mostly a dark, dirty yellow clay, too oily to mix with water, giving off gas and oil when heated and losing much of its weight, probably 30 or 40 per cent.....	455	460

*Logs—Continued.*

	Depth in feet.	
	From	To
Like the previous, with much coal .....	460	465
Sandstone, gray, micaceous, and some pieces of a black limestone, containing fragments of fossils .....	465	470
Oily clay, with coal and gray stony shale, some pyrite .....	470	475
Like the previous, with much coal and some fossiliferous limestone .....	475	480
Sandstone, with some yellow limestone containing organic fragments .....	480	485
Gray shale and some sandstone .....	485	490
Dark gray shale .....	490	500
Dark gray shale with a small <i>Ammodiscus</i> and some narrow fucoid markings .....	500	505
Gray limestone with imbedded yellow fragments of fossils with some black shale and coal .....	505	510
Mostly fire clay and coal .....	510	515
Sandstone, some coarse, some thinly laminated .....	515	520
Sandstone, comparatively coarse .....	520	525
Sandstone of average texture .....	525	535
Dark arenaceous shale .....	535	540
Shaly sandstone, black shale and coal .....	540	545
Some coal, fire clay, and dark sandy shale .....	545	550
Mostly coal, some black shale and fire clay .....	550	555
Gray sandstone, with a compact yellowish gray limestone breaking frequently into rectangular fragments, and probably of concretionary origin .....	555	560
Dark shale and sandy gray shale with fragments of concretions of carbonate of iron .....	560	565
Gray shaly sandstone .....	565	570
Dark "cloddy" shale and coal with some sandstone .....	570	575
Coal, stony fire clay and sandy shale .....	575	580
Gray sandy shale .....	580	585
Shaly sandstone .....	585	590
Shaly sandstone, greenish sandy shale, coal and concretionary carbonate of iron .....	590	600
Gray shale .....	600	605
Dark gray shale, hard .....	605	630
Dark gray shale with a fine textured and compact limestone, in part gray, in part yellow, apparently concretionary .....	630	635
Gray shale, with concretionary limestone like that in the above .....	635	640
Gray sandstone and some black shale .....	640	645
Gray fine-grained sandstone, with some black coaly shale .....	645	650
Like the preceding, but less shale .....	650	655
Gray shale and black shale .....	655	660
Gray shale .....	660	665
Black micaceous shale and gray shale with concretionary material .....	665	670
Black micaceous shale with concretionary material .....	670	675
Gray and black shale and coal .....	675	680
Coal and gray shale .....	680	685
Gray shaly and micaceous sandstone with much carbonaceous material, and with imprints of vegetation abundant in some fragments .....	685	690
Dark gray sandstone of fine texture with thin layers of carbonaceous material .....	690	695
Dark gray micaceous shale with imprints of fern leaves .....	695	700
Dark gray shale, micaceous .....	700	705
Dark gray shale, micaceous, stony .....	705	725
Black shale, hard .....	725	730
Black shale .....	730	735
Black shale, with "clod" limestone containing a crinoid stem and some coal .....	735	740
Gray micaceous sandstone, comparatively coarse in texture .....	740	745
Gray sandstone .....	745	750
Shale, almost black .....	750	755
Black shale and coal .....	755	760
Black shale and fragments of "clod" limestone, coal and fire clay .....	760	770
Gray micaceous sandstone, with brown concretionary material .....	770	775
Gray sandstone and black shale .....	775	780
Gray shale and some sandstone .....	780	785
Gray sandstone and shale, with much brown concretionary material .....	785	790
Like the preceding, with some calcareous material .....	790	795
Gray shale, and some fire clay with thin carbonaceous flakes imbedded .....	795	800
Dark gray shale, micaceous .....	800	810
Shale, almost black .....	810	820
Black and gray shale, some "clod" limestone, some fire clay and some concretionary carbonate of lime .....	820	825
Black clayey shale, some coaly shale, some brown and soft concretionary material .....	825	830
Dark bluish shale and some sandstone .....	830	835

*Logs—Continued.*

	Depth in feet.	
	From	To
"Clod" limestone, dark and black shale, coal, and greenish shaly fire clay .....	835	840
Bluish gray shaly fire clay and black shale .....	840	845
Gray fire clay and some coal .....	845	850
Black shale, gray shale and sandstone .....	850	855
Gray shale and shaly sandstone .....	855	860
Black shale and coal, with some concretionary carbonate of iron..	860	875
Black shale and gray shale with much concretionary carbonate of iron and some coal .....	875	880
Dark gray shale with concretionary carbonate of iron .....	880	885
Dark gray shale, with much concretionary carbonate of iron .....	885	890
Black micaceous shale .....	890	895
Black shale slightly micaceous .....	895	900
Mostly black shale, with some concretionary material .....	900	905
Thinly laminated shale with alternate layers light and dark .....	905	910
Dark gray, stiff shale .....	910	915
Dark gray shale, laminated, with alternate layers of light, sandy, dark and finer texture .....	915	920
Laminated shale, sandy laminae, about four, in a thickness of a sixteenth of an inch .....	920	925
Like the previous, but with sandy laminae, thicker .....	925	940
Coaly black shale and gray shaly sandstone, both micaceous .....	940	945
Black shale, greenish gray shale, and sandstone .....	945	950
Incoherent gray sand, some 70 per cent of the grains measuring from one-eighth to one-fourth of an millimeter in diameter, some 20 per cent measuring less than one-eighth mm. and only a few per cent measuring more than one-fourth of a mm. The sand floats on water .....	950	955
Black shale .....	955	960
Black shale, brownish concretionary carbonate of iron and some sand .....	960	965
Gray, faintly brownish sand which floats on water, with some coherent lumps which emit oil when heated .....	965	970
Thinly laminated shaly sandstone, alternate laminae of dark and light material. Laminae mostly about one-half millimeter in diameter. Slightly effervescent with acid .....	970	975
Like the preceding, but more shaly and lamination less frequently to be seen .....	975	980
Dark stony shale, with thin layers of alternating light and dark material, with some concretionary brownish carbonate of iron...	980	985
Sandy laminated shale or shaly sandstone, layers bending and curving .....	985	990

NOTE—Dr. Udden adds the following statement to the above log: "The limestone at 360 feet is probably correlative with a limestone horizon which occurs at about 160 feet above Coal No. 6, in the Belleville region. The limestone at 200 feet is most likely an equivalent to the Carlinville limestone about 150 feet higher in the section. Coal No. 6 is believed to be the coal at 510 feet. The several coal seams penetrated are no less than 14 or 15 in number, and fall into three groups. The lower groups, consisting of five coals probably of small size, includes the coals from 670 to 850 feet below the surface. It probably includes coals 1 and 2 of northern Illinois. The middle group comprises the coals from 430 to 580 feet below the surface and no doubt includes Coal No. 6. The uppermost group of coal beds, comprising some small coals of the "Upper Coal Measures" of Worthen, are the coals in the upper 200 feet of the section. The sandy shale in the lower part of the section, which contains the oil sand, exhibit a quite persistent lamination of thin dark and light layers. It is believed that this feature may be useful in their identification in the nearest outcrops."

No. 3.—*L. R. Newlin, No. 21.*

Location—SW.  $\frac{1}{4}$  SE.  $\frac{1}{4}$  sec. 27, T. 6 N., R. 14 W., Martin Township.  
Elevation—498 feet.

	Depth in feet.	
	From	To
Drift .....	1	25
Dark limestone, brown limestone, fragments of coal and yellow sand .....	25	30

*Logs—Continued.*

	Depth in feet.	
	From	To
Dark limestone with sand .....	30	40
Gray sandstone with infiltrated lime .....	40	45
Gray sandstone, some yellow limestone, and siderite.....	45	50
Gray sandstone with some yellow limestone. Pyrite noted.....	50	60
Coarse gray micaceous sand with fragments of coal.....	60	65
Coarse gray micaceous sand .....	65	70
Coarse micaceous sandstone .....	70	75
Coal and some fire clay .....	75	80
Gray micaceous sand. A little lime in sand.....	80	110
Dark micaceous shale and sand .....	110	115
Gray micaceous shale and sand. A few fossil fragments.....	115	120
Limestone, fragmental, organic, crinoid fragments and bryozoa noted .....	120	125
Light gray shale of fine texture .....	125	130
Limestone, in part fragmental, and some shale .....	130	135
Gray sandy shale with some crinoidal limestone .....	135	140
Gray micaceous sandy shale, with some limestone .....	140	145
Gray micaceous shale .....	145	150
Gray micaceous sandstone and much darker clay iron stone.....	150	155
Gray micaceous shaly sandstone, with imbedded shreds of vegetation .....	155	160
Gray micaceous shaly sandstone .....	160	170
Fine grained, gray micaceous sandstone with interstitial lime.....	170	175
Some black fissile shale. Mostly a dark blotched organic breccia limestone, containing many crinoid stems, some small <i>Athyris</i> and some crinoid spines .....	175	180
Like the preceding, with some sandstone and coal .....	180	185
Sandstone, limestone and shale .....	185	190
Micaceous sandstone, with some laminated sandy shale.....	190	195
Gray sandstone, quite coarse .....	195	210
Micaceous silty gray shale .....	210	240
Gray shale, and some dark shale .....	240	245
Black shale, clay iron stone, crinoid stems, <i>Bellerophon</i> , <i>Athyris</i> , a <i>cyathophylid</i> , two <i>gastropods</i> .....	245	250
Black shale and coal .....	250	255
Yellowish and gray concretionary siderite and limestone, with some fire clay and coal .....	255	260
Gray shale .....	260	265
Gray sandstone and some dark shale .....	265	270
Gray micaceous sandstone .....	270	275
Laminated gray sandstone of fine texture .....	275	280
Gray shale and fire clay .....	280	285
Gray sandstone .....	285	290
White sandstone with siderite concretions .....	290	295
Laminated sandstone .....	295	300
Micaceous sandstone and dark shale .....	300	305
White micaceous sandstone .....	305	330
Gray sandy shale, micaceous .....	330	345
Gray micaceous sandy shale and some dark gray shale.....	345	350
Like the preceding with some clay iron stone .....	350	355
Mostly coal, some shale and some fragments of concretionary limestone .....	355	360
Gray sandstone with siderite .....	360	365
Gray sandy shale, micaceous .....	365	375
Gray sandstone, with some limestone, white .....	375	380
Gray sandstone, with interstitial calcareous material and some pure white limestone .....	380	385
Greenish gray sandstone .....	385	390
Gray sandstone, with many concretionary spherules about $\frac{1}{2}$ millimeter in diameter .....	390	395
Gray sandstone .....	395	400
Dark gray sandy shale, stiff .....	400	405
Dark gray micaceous shale .....	405	410
Dark gray shale .....	410	415
Dark shale and limestone, with pyrite calcite with many crinoid stems, and an <i>Estheria</i> (?) .....	415	420
Coal with some limestone fragments and shale .....	420	425
Coal and fire clay .....	425	430
Gray sandstone, with some yellow fragments or concretionary material .....	430	435
Gray sandstone.....	435	440
White sandstone.....	440	445
Yellowish white sandstone.....	445	450
Dark shale.....	450	455
Black shale and coal.....	455	460
Gray sandstone, micaceous .....	460	465
Gray limestone and some large quartz grains.....	465	470
Gray sandy shale, micaceous.....	470	475

## Logs—Continued.

	Depth in feet.	
	From	To
Sandstone and some limestone.....	475	480
Shaly sandstone, with some siderite concretions.....	480	485
Black and dark micaceous shale.....	485	490
Black dolomitic limestone, with calcite, Rhombopora, lepidodendroides, crinoid stems.....	490	495
Black limestone, with crinoid stems and coal.....	495	500
Gray micaceous sandstone, with some interstitial calcareous material.....	500	510
Gray sandstone and a dirty yellow dolomitic limestone, concretionary (?).....	510	515
Limestone.....	515	520
Gray silty shale with carbonaceous shreds imbedded.....	520	525
Gray silty shale with thin layers of shiny coal of silky lustre. Coal layer in one fragment adhering to the shale.....	525	530
Gray shale of fine texture.....	530	535
Dark shale of fine texture.....	535	555
Black shale and coal, mostly impure.....	555	560
White sandstone of fine texture.....	560	565
Light gray shale, with small spherical siderite concretions.....	565	570
Gray shale, with much siderite, in fragments and in minute spherical concretions. Some bright red fragments noted, "rusty".....	570	575
Shaly sandstone and sandy shale, gray, with siderite as in preceding sample.....	575	580
Sandy shale, gray, with siderite fragments.....	580	585
Gray sandstone, some shale and siderite.....	585	590
Shaley sandstone or sandy shale, gray.....	590	595
Sandstone, black shale and "clod," with some coal and siderite concretions.....	595	605
Shale and shaly sandstone, with fragments of siderite concretions and coal.....	605	610
Greenish fire clay and shale.....	610	615
Shaly sandstone, gray.....	615	620
Black miner's slate, with siderite concretions.....	620	625
Black miner's slate, with sandstone and gray shale.....	625	630
Gray sandy shale.....	630	635
Dark gray sandy shale, micaceous.....	635	645
Gray laminated shaly sandstone.....	645	650
Dark gray sandy shale.....	650	655
Black stiff shale, almost miner's slate.....	655	665
Black stiff shale and impure coal.....	665	670
Black shale and black concretionary limestone, with fossils.....	670	675
Gray sand and gray sandy shale with some coal.....	675	680
Coal with very bright (black) lustre and fire clay.....	680	685
Coal of bright lustre and brownish earthy streak and some fire clay.....	685	690
Gray gritty fire clay and dark shale.....	690	695
Shale, gray.....	695	705
Shale, gray, and some siderite.....	705	710
Dark limestone, some dark shale and pyrite.....	710	720
Dark shale, some dark limestone and spherulitic siderite.....	720	725
Shale, dark, some coal; a little dark limestone.....	725	730
Dark shale, some coal, and spherulitic siderite.....	730	735
Gray micaceous shale, and bits of yellow limestone.....	735	740
Gray micaceous shale, and fragments of siderite.....	740	745
Dark micaceous shale, some siderite, bits of coal and lime.....	745	750
Gray micaceous shale and siderite.....	750	755
Gray micaceous shale, some fire clay, coal and pyrite.....	755	760
Coarse gray micaceous shale, pyrite, little shale.....	760	770
Black shale and some coarse sandstone.....	770	775
Coal and fire clay, and some gray shale.....	775	780
Coal and fire clay, and some gray fire clay with pyrite.....	780	785
Black shale, bits of yellow limestone, and spines of brachiopods, and spherulitic siderite.....	785	790
White sandstone and shale, black, some yellow limestone and coal, and spherulitic siderite.....	790	795
Dark shale, some little sandstone, siderite and limestone.....	795	800
Black shale and some siderite.....	800	810
Black shale.....	810	820
Gray micaceous shale and some sandstone.....	820	825
Limestone, dark and white; some sandstone with infiltrated lime; gray micaceous shale, pyrite and some crinoid joints.....	825	830
Dark and white limestone with crinoid stems and pieces of shells, and pyrite.....	830	835
Gray micaceous sandstone, and some dark and white limestone.....	835	840
Black micaceous shale, some sandstone, and white limestone.....	840	845
Black micaceous shale.....	845	850
Black micaceous shale, some white sand and siderite.....	850	860
Gray sandstone and dark shale.....	860	865
Gray sandstone, some dark shale and siderite.....	865	870

*Logs—Continued.*

	Depth in feet.	
	From	To
Coarse gray sandstone and a little shale.....	870	875
Gray micaceous sand.....	875	885
Gray sand and some dark shale.....	885	890
Gray sand, white limestone, a little shale and pyrite.....	890	895
Gray sandstone, bits of limestone, shale and siderite.....	895	905
Gray micaceous sand.....	905	940
Gray micaceous sand, and some dark shale.....	940	950
Dark sandy micaceous shale.....	950	955

No. 4.—*C. E. Siler, No. 4.*

Location—NE. corner sec. 5, Honey Creek Township.

Elevation—495 feet (estimated).

	Depth in feet.	
	From	To
<i>Pleistocene:</i>		
Loess or yellow loam.....	1	5
Gravel and sand.....	5	10
Sand and gravel.....	10	15
Sand and gravel washed from boulder clay.....	15	20
Boulder clay.....	20	40
<i>"Coal Measures":</i>		
Limestone, with imbedded crinoid stem, a small Spirifer cameratus, a small gasteropod, and a piece of a plant stem.		
Some roof shale.....	40	45
Shale, greenish gray, micaceous.....	45	50
Gray shale.....	50	55
Fine-grained micaceous sandstone with a calcareous matrix...	55	62
Arenaceous, gray shale.....	62	68
Micaceous, gray shale.....	68	74
Micaceous, dark gray shale.....	74	80
Micaceous sandstone, with fragments of concretions of carbonate of iron.....	80	86
Sandstone, gray micaceous, calcareous and shaly, with many fragments of shells of yellowish color.....	86	92
Gray shale and micaceous shaly sandstone, with a small Myalina, and many fragments of shells. Some coal noted.....	92	98
Some limestone, but mostly shale. The shale is dark gray, micaceous, and marly. It has many minute, apparently concretinary grains, yellow, of carbonate of iron. These appear like coarser grains in a fine textured matrix. The limestone is dark with imbedded flat fragments of Myalina, shells, and one piece was seen with imbedded trenchantly marked tubules, believed to be irregularly curving forms of Ammodiscus, measuring from .1 to .15 mm. in diameter....	98	103
Micaceous sandstone or sandy shale, with some brownish limestone .....	103	109
Micaceous gray sandstone of fine texture, almost a shale....	109	114
Micaceous sandstone and some green grains, with some brown calcareous coaly fragments.....	114	119
Fine-grained sand, micaceous, and with brown and green grains, as above.....	119	139
Like the previous, but with occasional carbonaceous fragments .....	139	145
Gray, micaceous sandstone, with some dark and some green grains, and some shreds of carbonaceous material.....	145	150
Black fissil "miner's slate" with prytized fossil shells, one probably being an Aviculopecten, another like a minute Myalina .....	150	155
Some shaly fire clay and a little coal, but chiefly gray micaceous shale with minute concretions of carbonate of iron of the size of small sand grains.....	155	160
Gray micaceous shaly sand. One large fragment showing lines believed to be wave marks.....	160	165
Gray slightly micaceous shale, with very thin calcareous laminae .....	165	170
Gray shale, slightly micaceous shale with a brownish minute disc-shaped fossil of spiral structure, probably an Ammodiscus .....	170	175
Gray shale, faintly micaceous.....	175	180
Black fissile shale, with a very fine rectangular reticulation seen on a cleavage plane. Some fragments of coal.....	180	185
Greenish gray fire clay and shale, with fragments of dark concretinary limestone.....	185	190
Fine-grained micaceous sandstone or shale, with yellow specks of concretinary siderite.....	190	200

## Logs—Continued.

	Depth in feet.	
	From	To
<b>Coal Measures—Continued.</b>		
Gray, dark, and compact concretionary carbonate of iron in large fragments.....	200	205
Dark gray shale, with <i>Ammodiscus</i> (?).....	205	210
Mostly dark concretionary carbonate of iron in large fragments, with some dark stony shale.....	210	215
Dark shale of fine texture.....	215	220
Dark shale slightly micaceous, with <i>Ammodiscus</i> (?) and minute shreds of other fossils.....	220	225
Dark micaceous shale, slightly calcareous.....	225	230
Like the previous, with minute shreds of vegetation.....	230	240
Dark micaceous shale, like that in the previous sample, with <i>Ammodiscus</i> (?) and a small ostracod.....	240	245
Dark micaceous shale, with impressions of fern leaves, and with a spiral <i>Ammodiscus</i> (?) and one tube of an <i>Ammodiscus</i> (?) only slightly curving. Some keeled impressions were noted on one fragment and stem joints and spines of crinoids were also noted.....	245	250
Dark gray shale.....	250	255
Gray sandy shale.....	255	260
Gray sandy shale, or shaly sandstone, showing some dark grains under the lens.....	260	265
Shale, greenish gray, sandy and micaceous.....	265	270
Greenish gray micaceous sandstone and red clay marl.....	270	275
Greenish gray sandy shale.....	275	280
Comparatively coarse sandstone, with some green and some pink grains. Also some lumps of fire clay, which contain small spherical nodules of black oxide of manganese from one-fourth to one-third mm. in diameter. Some of these concretions are grown together in groups of two and three.....	280	286
Comparatively coarse sandstone, with some interlaminated shale.....	286	290
Mostly sandstone, gray and of fine texture, with some shale. Color various.....	290	295
Sandy gray shale or shaly sandstone.....	295	302
Micaceous gray shale.....	302	308
Dark gray shale, not micaceous.....	308	320
Very dark shale, carbonaceous and sandy. Most of it is finely laminated and shows shreds of vegetation.....	320	335
Shaly sandstone or shale, thinly laminated, containing brownish yellow grains (concretionary?) larger than the grains of the rock and also some still larger black grains.....	335	350
Like the previous, with the brown grain least abundant in the layers of the finest texture, which are carbonaceous.....	350	356
Sandstone, with interlaminated carbonaceous streaks showing vegetable tissue.....	356	362
Coal, shale, and sandstone.....	362	368
Mostly fire clay.....	368	374
Mostly concretionary material, carbonate of lime and iron, and some shale.....	374	380
Concretionary limestone and carbonate of iron, in shale.....	380	387
Light gray micaceous and sandy shale.....	387	394
Micaceous and sandy gray shale.....	394	401
Micaceous sandstone and gray shale.....	401	407
Dark gray shale.....	407	413
Dark gray limestone, consisting of organic fragments, some black shale and coal. The limestone contains <i>Chonetes mesolobus</i> (?), crinoid stems and a gasteropod ( <i>Bellerophon carbonaria</i> ?).....	413	419
Fire clay, gray and black shale, and coal.....	419	426
Gray shale.....	426	432
Gray sandstone of fine texture.....	432	438
Gray shale, arenaceous and micaceous.....	438	450
Shaly sandstone, micaceous and with rusty specks.....	450	456
Gray shale, micaceous and sandy.....	456	462
Dark gray shale, micaceous and sandy.....	462	468
Like the above, but darker.....	468	480
Almost black dolomitic limestone, uniform in texture, emits sulphurous odors when heated and becomes slightly magnetic before the blowpipe, and contains joints of crinoid stems, <i>Chonetes mesolobus</i> (?), <i>Rhombopora lepidodendroides</i> (?), fragments of brachiopod shells, and <i>Fusulina</i> of the kind occurring in the limestone above Coal number 6.....	480	486
Black fissile shale and some coal, with limestone.....	486	492
Gray sandy shale and some dark shale.....	492	498
Gray slightly sandy shale.....	498	504
Soft gray micaceous shale.....	504	510
Gray shale, soft and micaceous, with some dark shale showing shreds of vegetation.....	510	516

*Logs—Continued.*

	Depth in feet.	
	From	To
<i>Coal Measures—Continued.</i>		
Gray slightly micaceous sandstone, with some large and thin fragments of black dolomitic limestone .....	516	522
Gray sandstone, with some limestone like that in the previous sample .....	522	528
Dark gray highly micaceous shale, with scales of biotite and on fresh fractures having an appearance like that of Archaen schists .....	528	534
Gray sandstone and sandy micaceous shale, with some dark shale and fragments of coal .....	534	540
Dark gray sandy shale, micaceous, with some fire clay .....	540	546
Dark shale of fine clayey texture .....	546	552
Dark gray shale, micaceous and stony .....	552	564
Dark gray shale, of clayey texture .....	564	570
Dark gray shale, with narrow fucoid bands in some cleavage planes .....	570	576
Black fissile shale .....	576	588
Mostly light gray sandstone, some gray shale, with fragments of coal and limestone .....	588	594
Mostly light gray sandstone with some dark shale .....	594	600
Dark micaceous, shaly sandstone .....	600	606
Dark micaceous, sandy shale .....	606	612
Dark, almost black, shale .....	612	618
Dark, almost black, shale, with fragments from concretion of carbonate of iron .....	618	624
Gray shale, of clayey texture .....	624	636
Gray shale, with some little mica .....	636	642
Like the previous sample, but slightly coarser and with a little more mica .....	642	648
Black shale, of fine texture, but with some mica, and with earthy lustre .....	648	654
Black shale, much pyrites of iron, and some coal. The shale has imbedded calcareous fossils among which a piece of lamellibranch valve and a Bellerophon were noted, and also impressions of an insect wing (?). In the fragments of pyrites was noted a Nucula, a Bellerophon carbonaria (?) in part filled by zinc blende, and a fragment of a brachiopod. In the coal some woody tissue was noted. ....	664	660
Light gray sandy fire clay filled with small crystals of pyrites .....	660	666
Dark gray micaceous and sandy shale .....	666	672
Dark gray shale of fine texture, with pyrites and coal .....	672	678
Black fissile shale and finely laminated coal with brown streak. Woody fibre seen in some pyrite .....	678	684
Shaly fire clay, light gray and stony .....	684	690
Gray shale and sandstone .....	690	696
Sandstone, somewhat coarse, laminated, in alternate layers of white and carbonaceous black material, some layers micaceous .....	696	708
Dark gray shale, stony, sandy and micaceous .....	708	714
Gray shale, stony, sandy and micaceous .....	714	720
Dark shale, with some laminated coal and some fire clay .....	720	726
Gray sandstone, shaly and micaceous .....	726	732
Soft gray shale .....	732	738
Some gray shale, and some dark micaceous shale with concretionary carbonate of iron .....	738	744
Almost black fissile shale, with concretionary carbonate of iron .....	744	750
Gray sandstone of fine texture .....	750	756
Dark gray shale, arenaceous and micaceous .....	756	762
Laminated, gray sandstone, micaceous, alternate layers in black and carbonaceous, the black layers very thin, the light layers in several cases measuring one-tenth of an inch in thickness .....	762	768
Coarse micaceous sandstone, laminated with alternate layers of dark carbonaceous shale .....	768	786
Like the previous, sandstone coarser and softer .....	786	798
Dark gray shale and some lighter shale .....	798	804
Almost black shale, fine in texture .....	804	817
Light gray sandy shale, slightly micaceous .....	817	830
Dark gray and light gray shale of fine texture .....	830	836
Gray sandstone, of very fine texture .....	836	848
Dark bluish gray shale of very fine texture with concretionary carbonate of iron .....	848	854
Almost black shale, very fine in texture .....	854	860
Coarse sandstone .....	860	866
Almost black shale, fine in texture .....	866	878
Almost black shale, with biotite .....	878	884
Black shale, fine in texture .....	884	902
Gray sandstone, fine grained .....	902	908



## Logs—Continued.

	Depth in feet.	
	From	To
<i>Coal Measures—Concluded.</i>		
Gray sandstone .....	908	914
Black shale of fine texture, with concretions of carbonate of iron .....	914	938
Gray shale and sandstone, with some large and thin chips of coal .....	938	944
Gray soft sandstone and shale. The rock in this and the previous sample appears to be a mixture of alternating layers of shale and sandstone .....	944	950
Gray soft sand, only a single fragment of loosely coherent rock, remaining in the sample. Size of grains is about one-fourth mm. in diam. Apparently oil sand; the grains float on water .....	950	955
Gray sand, with grains mostly from one-eighth to one-half mm. in diameter. The largest grains all have crystalline facets resulting from secondary growth. Sand floats on water .....	955	959
Sand like the previous, but faintly brownish yellow .....	959	963
Sand like that in the three previous samples, except that it is more nearly white in color .....	963	967

NOTE—Dr. Udden states that two specimens of a *Fusulina* were found in a limestone occurring at the depth of 480 to 486 feet from the surface, and this no doubt is the limestone which forms the cap-rock over Coal No. 6. The rock itself has been altered to a dark dolomite, effervescing very tardily in acid. It has a dark gray color which is evidently due to the presence of iron pyrites in microscopic particles. On heating in a closed tube it gives off sulphurous odors and becomes slightly magnetic. The entire section represented by the two samples studied consists of variations of shales, sandstones, limestones, coals and fire clays, with calcareous concretionary matter, and more frequently concretions of carbonate of iron. They all have the general appearance characteristic of the Pennsylvanian series in this region. About a dozen coal beds were penetrated, which occur in three groups, not counting an evidently thin bed of somewhat shaly coal, which lay at a depth of 904 feet below the surface and only a few feet above the oil sand. The lowest of these groups which presumably includes equivalents of Coals Nos. 1 and 2 in northern Illinois, is represented by three seams at 720, 678 and 660 feet below the surface. The middle group, which includes Coal No. 6 is represented by one coal at 540 feet, by Coal No. 6 at the depth of 485 feet, another coal, overlain by limestone, at 420 feet and a coal overlain by sandstone at 365 feet. The coal beds of the "Upper Coal Measures" of Worthen are represented by an apparently small seam of coal at a depth of 185 feet, one small coal associated with a capping calcareous bed at the depth of 95 feet, and a black shale under a limestone at the very surface of the bed rock under the drift, fifty feet below the surface. The spiral shell of an *Ammodiscus* was observed in cleavage surfaces of some shales in the "Upper Coal Measures" and presumably the same fossil, in the form of irregularly bending tubes occurred in some limestone at the depth of 100 feet.

## No. 5.—C. F. Curtis, No. 8.

Location—NE. corner sec. 11, Oblong Township.

Elevation—475 feet (estimated).

	Depth in feet.	
	From	To
Yellow boulder clay .....	1	10
Boulder clay and drift gravel .....	10	15
Drift gravel and sand .....	15	20
Drift gravel and sand, with some boulder clay .....	20	25

*Logs—Continued.*

	Depth in feet.	
	From	To
Drift sand and gravel .....	25	30
Drift .....	30	35
Drift sand and gravel .....	35	60
Drift gravel and some sand .....	60	70
Drift sand and gravel. A few bits of coal .....	70	75
Drift sand and gravel .....	75	90
Drift sand and gravel, with some shale .....	90	110
Sandy micaceous shale .....	110	115
Dark micaceous shale .....	115	120
Sandy dark gray shale .....	120	135
Sandstone, sandy shale and coal. Some fragments of limestone noted and some pyrites with woody fibre .....	135	140
Black shale, fire clay and coal .....	140	145
Gray and yellow limestone. Gray sandstone and coal with some shale .....	145	150
Gray sandstone, micaceous and of fine texture .....	150	155
Like the preceding, with some siderite .....	155	165
Moderately coarse gray and yellow micaceous sand .....	165	170
Gray shale, micaceous sand .....	170	180
Moderately coarse micaceous sandstone .....	180	190
Gray, fine sandstone, and yellow concretionary limestone, in which is considerable pyrite .....	190	195
Gray micaceous sandy shale and concretionary siderite .....	195	205
Gray micaceous sandy shale and a few pieces of yellow limestone .....	205	210
Gray micaceous sandy shale .....	210	215
Gray micaceous shale .....	215	220
Gray micaceous shale, a few pieces of gray sandstone, some white limestone and coal .....	220	225
Gray micaceous shale, with imprint of vegetation, some fire clay and pieces of white limestone .....	225	230
Dark gray micaceous shale .....	230	235
Dark gray and gray micaceous shale .....	235	240
Dark micaceous shale .....	240	245
Black shale, a few pieces of sandstone, siderite, yellow limestone and pyrite .....	245	250
Black shale and coal, some pure calcite and white limestone .....	250	255
Black shale and coal, some dark limestone and gray sandstone .....	255	260
Darkish gray limestone (nodular in structure), some coal gray sandstone and bits of pyrite .....	260	265
Gray shale, concretionary yellow limestone, some white limestone, some gray sandstone, and some black coaly shale .....	265	270
Yellowish limestone, some gray limestone, gray sandstone, some concretionary sandstone, a little coal and pyrite .....	270	275
Greenish gray stony shale, with a few very thin laminae of coal .....	275	280
Gray micaceous stony shale .....	280	290
Dark gray stony shale .....	290	295
Dark greenish gray shale of fine texture .....	295	305
Dark shale of fine texture .....	305	310
Gray sandstone, brown concretionary siderite, gray shale, black shale, gray limestone, crinoid stems and a few fragments of coal .....	310	315
Gray shale and grayish brown fossiliferous limestone, with crinoid stems, brachiopod spines, pieces of shells, etc. A piece of con- cretionary siderite showed a fissure filled with clear calcite .....	315	320
Gray shale, concretionary brown siderite, sandstone and coal. The limestone contains organic fragments. The coal is impure and shows very thin lamination .....	320	325
Gray sandstone containing shreds of carbonaceous material and pyrite, with some shale .....	325	335
Light gray thin-bedded micaceous sandstone, some pieces with infiltrated lime .....	335	345
Mostly a grayish limestone containing some fine siliceous mate- rial, with some yellow and some white limestone and some black shale .....	345	350
Gray limestone and some gray sandy lime, showing occasional obscure fragments of fossils .....	350	355
Gray limestone and white limestone of waxy lustre .....	355	360
Greenish gray micaceous and sandy shale and some lime .....	360	380
Greenish gray shale of somewhat fine texture .....	380	385
Dark gray shale of somewhat fine texture .....	385	395
Gray shale .....	395	400
Dark almost black micaceous shale, showing narrow traversions impregnated with thin green films of pyrite .....	400	405
Black shale with shreds of carbonaceous vegetation. Some gray shale and some siderite .....	405	410
Gray shale with carbonaceous shreds, some black coaly shale. A few pieces of siderite noted .....	410	415
Gray and black, coaly shale and gray sandstone .....	415	425
Gray sandstone, some gray shale and pieces of siderite .....	425	435

## Logs—Continued.

	Depth in feet.	
	From	To
Gray micaceous sandy shale, some gray shale and concretionary siderite .....	435	440
Dark gray shale .....	440	445
Dark gray shale and concretionary siderite .....	445	455
Dark gray shale, with imprints of vegetation, and some siderite...	455	460
Gray shale with imprints of vegetation. Some siderite and some carbonaceous shale .....	460	465
Gray sandstone and white limestone, some fragments of coal and of concretionary siderite.....	465	475
Gray micaceous shale, some yellow concretionary siderite, a little limestone and gray shale.....	475	480
Gray micaceous sandy shale, some yellow limestone and siderite...	480	485
Dark gray sandy micaceous shale, some gray shale, concretionary siderite and some gray sandstone.....	485	490
Dark micaceous shale.....	490	495
Dark gray micaceous shale and some siderite.....	495	500
Black limestone and some black shale, and some siderite. Crinoid stems noted.....	500	505
Black limestone, some black shale, some coal and siderite. Crinoid stems noted.....	505	510
Black limestone, some black shale, coal and siderite. A <i>Fusulina</i> lamellibranch (?) shell, <i>Aviculopecten</i> carboniferous, a minute gastropod, and some crinoid spines and stems noted. The limestone yields bituminous and sulphurous odors when heated.....	510	515
Dark limestone, some pieces impregnated with small particles of pyrite, some coal and black shale, some siderite and fragments of white limestone and calcite.....	515	520
Black limestone, a few pieces of coal, pyrite, siderite, white limestone and crinoid stems.....	520	525
Gray micaceous sandstone, some black limestone, coal and gray shale with pyrite siderite and white limestone.....	525	530
Gray micaceous sandstone.....	530	550
White micaceous sandstone with some concretionary limestone and bits of coal.....	550	555
White micaceous sandstone and coal, with some fire clay, siderite, white limestone, much pyrite, and some calcite. <i>Productus</i> , <i>Edmondia nebrascensis</i> (?), <i>Hemipronitus crassus</i> , <i>Chonetes punctatus</i> (?), some small gastropods, several crinoid spines and stems and a bryozoan like <i>Rhombopora</i> noted.....	555	560
Gray sandstone and coal, with some white limestone, pyrites, calcite, shale and a few crinoid stems.....	560	565
Dark gray shale, some coal, sandstone, pyrite and fire clay.....	565	570
Gray micaceous sandstone, with a little fire clay and shale.....	570	575
Gray micaceous sandstone, some of which is studded with spherules of pyrite measuring from 1 to 3 mm. in diameter, and showing faces of small cubic crystals on the surface.....	575	585
Gray micaceous shale.....	585	610
Gray micaceous shale and some siderite.....	610	615
Dark gray shale.....	615	620
Gray shale and some yellow limestone, concretionary siderite in large fragments and in minute spherules, coal and some sandstone .....	620	625
Gray micaceous shale, a little yellow limestone, siderite, pyrite and coal.....	625	630
Gray micaceous sandstone and shale with siderite, fire clay and coal .....	630	635
Gray micaceous sandstone and some shale.....	635	640
Gray micaceous sandstone.....	640	645
Gray micaceous sandstone, with some siderite.....	645	650
Gray micaceous shale and some yellow limestone, and fire clay...	650	655
Dark gray shale, some fire clay and concretionary siderite.....	655	660
Dark gray micaceous shale and a little yellow limestone and siderite .....	660	675
Dark gray micaceous shale.....	675	680
Dark gray and some micaceous black shale, with a little siderite..	680	685
Dark shale, with imprints of vegetation, and some fire clay.....	685	690
Dark shale and concretionary siderite.....	690	695
Dark micaceous shale and some siderite.....	695	700
Dark gray micaceous shale.....	700	715
Gray micaceous shale and some sandstone.....	715	725
Gray laminated sandstone and black shale.....	725	730
Dark shale, concretionary siderite and a little sandstone.....	730	735
Hard black shale.....	735	740
Black shale, some coal and sandstone and a little siderite.....	740	745
Gray micaceous shale, some yellow limestone, some black shale and a few bits of coal.....	745	750
Black shale and a few fragments of yellow limestone and coal....	750	755
Black micaceous shale.....	755	760
Coal and a few pieces of black shale.....	760	765

*Logs—Continued.*

	Depth in feet.	
	From	To
Coal and black shale, some white limestone, a little sandstone siderite and bits of pyrite.....	765	770
Gray sandstone, some dark shale, bits of coal and limestone.....	770	775
Gray micaceous sandstone and a little yellow limestone.....	775	790
Dark micaceous shale and a little siderite.....	790	795
Black shale and a little coal. A little gray limestone noted.....	795	800
Black shale, a little coal and a little sandstone.....	800	805
Dark pyritiferous shale and some gray sandstone.....	805	815
Gray micaceous shale.....	815	820
Gray micaceous shale and a few bits of coal.....	820	825

*No. 6.—J. M. Drake, No. 23.*Location—NE.  $\frac{1}{4}$  sec. 9, Oblong Township.

Elevation—490 feet (estimated).

	Depth in feet.	
	From	To
Gray limestone, some yellow limestone and bits of shale.....	200	205
White and yellow limestone, concretionary siderite, some gray sandstone and a piece of quartz.....	205	210
Yellow and white limestone, gray sandstone, concretionary siderite and some dark shale.....	210	215
Gray sandstone, some yellow sandstone, siderite, quartz fragments, yellow limestone and a few pieces of bright green sandstone.....	215	220
Yellow limestone, some siderite, shale and sandstone and red quartz (from drift?).....	220	225
White and yellow limestone and a few pieces of dark shale.....	225	230
White limestone.....	230	250
Very fine micaceous white sand and limestone.....	250	270
Dark gray micaceous sandy shale.....	270	275
Dark micaceous shale.....	275	285
Black shale and gray sandstone with a little limestone.....	285	290
Dark limestone, some yellow limestone and bits of coal.....	290	295
Black shale, a little yellow limestone and a few fragments of coal	295	300
Gray shale, some yellow limestone and coal.....	300	305
Gray shale and some yellow limestone.....	305	310
Gray shale.....	310	315
Gray shale and some yellow limestone.....	315	320
Gray shale.....	320	330
Gray shale and a little yellow limestone.....	330	335
Gray micaceous shale and some micaceous sandy shale.....	335	340
Gray shale.....	340	350
Concretionary siderite with a little yellow limestone and shale. A Cyathophylid coral noted.....	350	355
Gray shale and a little yellow limestone.....	355	360
Gray shale, yellow limestone and some sandstone. The shale contains shreds of vegetation.....	360	365
Gray shale and concretionary siderite.....	365	370
Gray limestone and some gray shale.....	370	375
White limestone. A crinoid stem noted.....	375	380
White limestone, some greenish sandstone and a few bits of coal..	380	385
Gray micaceous sandstone and white limestone.....	385	390
Gray shale and a little limestone.....	390	395
White limestone and some gray shale.....	395	400
Gray shale and some limestone.....	400	405
Concretionary siderite, some dark shale, bits of coal and pyrite....	405	410
Gray sandy shale and siderite. Some yellow limestone.....	410	415
Dark gray shale, some siderite and yellow limestone.....	415	420
Gray sandy shale and some siderite.....	420	425
Gray sandy shale, black shale and some siderite.....	425	435
Gray micaceous sandstone and a few bits of yellow limestone.....	435	440
Gray micaceous sandstone.....	440	445
Gray micaceous sandstone with shreds of vegetation. A few small pieces of siderite.....	445	460
Gray micaceous sandstone and a few small pieces of white limestone.....	460	465
Gray micaceous sandstone with shreds of vegetation.....	465	470
Gray micaceous sandstone, some dark shale, a few bits of coal, and pyrite showing woody tissue.....	470	475
Gray micaceous sandstone and white limestone. A little dark shale noted.....	475	480
Gray sandy shale and yellow limestone.....	480	485
Gray sandy shale and white limestone. Some yellow limestone....	485	490
Sandstone with infiltrated lime, white limestone, and a few small spherical siderite concretions.....	490	495

## Logs—Continued.

	Depth in feet.	
	From	To
Gray micaceous sandy shale, some yellowish limestone, white sandstone and a little dark shale.....	495	505
White sandstone, some dark shale and yellow limestone.....	505	515
Dark gray shale.....	515	520
Dark shale, fire clay, and some white limestone.....	520	525
Dark gray shale.....	525	530
Dark limestone, some dark shale, crinoid stems and some other organic material noted. Tuberculated-crinoid spine noted like that in S. G. McCleave well, 505-510, <i>Fusulina</i> noted.....	530	540
Dark limestone, coal, some yellow limestone and several crinoid stems noted.....	540	545
Gray micaceous sandstone and a few pieces of coal.....	545	550
Gray micaceous sandstone, a few bits of coal and siderite.....	550	555
Gray micaceous shaly sandstone, some siderite and a little limestone	555	560
Gray shale.....	560	565
Dark gray shale.....	565	570
Gray shale, some siderite and bits of pyrite.....	570	575
Gray shale and a little coal.....	575	580
Black shale and gray micaceous shale.....	580	585
Black micaceous shale and gray sandstone.....	585	590
Gray micaceous sandy and some black shale.....	590	595
Gray micaceous shale and black shale.....	595	600
Gray micaceous sandy shale and a little black shale.....	600	605
Gray micaceous sandstone and some siderite.....	605	610
Gray micaceous shale, some sandstone and siderite.....	610	615
Dark micaceous shale.....	615	620
Gray micaceous shale with shreds of vegetation.....	620	625
Gray sandy shale.....	625	635
Gray shale.....	635	640
Dark gray shale and some siderite.....	640	645
Dark gray shale, some siderite and yellow limestone.....	645	650
Dark shale, and siderite concretions.....	650	655
Dark shale, some siderite and a little white limestone.....	655	660
Gray shale.....	660	670
Gray sandstone, a few bits of pyrite and siderite.....	670	680
Gray sandstone.....	680	685
Gray sandy shale.....	685	690
Dark shale and gray sandy shale.....	690	695
Dark gray shale and some siderite.....	695	710
Dark gray shale.....	710	715
Dark shale and some siderite.....	715	725
Dark shale, and a little siderite.....	725	735
Dark shale, a little white sandstone and siderite.....	735	745
Dark shale and concretionary siderite.....	745	755
Dark shale.....	755	760
Black shale.....	760	765
Black shale and some sandstone.....	765	770
Gray micaceous sandstone and a little black shale.....	770	775
Gray shale and micaceous sandstone.....	775	780
Gray micaceous shale and little sand.....	780	785
Coal and gray shale.....	785	790
Gray shale, some fire clay, a little coal and bits of pyrite.....	790	795
Gray shale and some gray micaceous sandstone.....	795	800
Gray micaceous sandy shale and some gray shale.....	800	810
Gray micaceous shale.....	810	820
Gray sandy micaceous shale.....	820	825
Gray shale and concretionary siderite.....	825	830
Coal.....	830	835
Black carbonaceous shale and some gray shale.....	835	840
Black shale, gray sandstone and a little coal.....	840	845
White sandstone and a little white limestone.....	845	850
Dark shale and some white sandstone with infiltrated lime.....	850	860
Dark shale and some white sandstone with infiltrated lime.....	850	860
Dark shale, white sandstone, with infiltrated lime, some small		
Dark shale, white micaceous sandstone, and bits of coal.....	865	870
White micaceous sandstone.....	870	875
Dark shale and micaceous sandstone.....	875	880
Black micaceous shale, a little white limestone and a few bits		
tions.....	880	885
Gray micaceous shale.....	885	890
Hard black shale and a few pieces of white limestone.....	890	895
Gray sandstone and black shale. Small spherical siderite concretions and bits of pyrite.....	895	900
Black shale.....	900	905
Black shale and a very few pieces of white limestone.....	905	910
Black micaceous shale, white sandstone and some siderite concretions of coal.....	910	915
Black micaceous shale and a little limestone.....	915	920
White sandstone and dark shale.....	920	930

*Logs—Continued.*

	Depth in feet.	
	From	To
White micaceous sandstone containing carbonaceous shreds and a little black shale.....	930	935
Dark shale and some white micaceous sandstone.....	935	955
Like the preceding with a few bits of coal.....	955	960
Dark micaceous shale.....	960	965
White micaceous sandstone, some shale and a few bits of limestone.....	965	975
Gray micaceous shale, black shale and some sandstone.....	975	980
Gray shale and some sandstone.....	980	985
White micaceous sandstone and some dark shale.....	985	995
Gray micaceous sandy shale and a few pieces of white limestone..	995	1,005
Gray shale and some sandstone.....	1,005	1,010
Gray shale.....	1,010	1,020
Black shale and a little gray sandstone with infiltrated lime....	1,020	1,030
Gray micaceous shale, some grayish green pieces of shale and a few bits of limestone.....	1,030	1,045
Dark shale and a little sandstone.....	1,045	1,050
Dark shale.....	1,050	1,055
Yellow micaceous sand.....	1,055	1,060
Yellow micaceous sand and some dark shale.....	1,060	1,065

## No. 7—J. E. Wilson, No. 21.

Location—W.  $\frac{1}{2}$  NW.  $\frac{1}{4}$  sec. 17, T. 7 N., R. 12 W., Robinson Township.  
Elevation—490 feet (estimated).

	Depth in feet.	
	From	To
Dark gray shale, fine .....	200	205
Gray shale, fragments of concretions and coal .....	205	210
Shale, sandy, micaceous, light gray .....	210	215
Micaceous sandstone, light gray and of fine texture.....	215	220
Gray micaceous sandy shale .....	220	225
Laminated, dark and light gray micaceous shale .....	225	230
Gray, stony shale .....	230	245
Black shale and some gray shale .....	245	250
Gray shaly sandstone with infiltrated lime .....	250	255
Gray sandstone and shale .....	255	260
Gray sandstone, some limestone .....	260	265
Gray sandy shale, some limestone .....	265	270
Gray sandy shale and concretionary siderite, some limestone....	270	275
Dark gray shale .....	275	280
Gray sandstone and yellowish sandstone with infiltrated lime....	280	285
Coarse white sandstone, yellow micaceous sandstone and some gray shale .....	285	290
Coarse white sandstone and gray shale .....	290	295
White sandstone, some micaceous sandstone, little dark shale and limestone .....	295	300
Gray micaceous sandy shale, some gray shale .....	300	305
Gray micaceous sandy shale .....	305	310
Gray micaceous shale .....	310	320
Gray micaceous shale, some fragments of limestone .....	320	325
Dark gray shale, few bits of limestone .....	325	330
Dark gray shale and a few fragments of limestone and siderite..	330	335
Gray shale, siderite concretion, some bits of limestone and pyrite..	335	340
Dark gray and black shale .....	340	345
Gray shale, limestone and siderite concretions, some quartz grains	345	350
Gray micaceous sandy shale and black micaceous shale, a few bits of limestone .....	350	355
Gray micaceous sandy shale .....	355	360
Dark gray shale .....	360	370
White organic limestone, brecciated, crinoid stems. Rhombopora, lepidodendroides, ethyris, (?) and fragments of other brachiopods noted. One fragment with peculiar finely reticulate structure noted .....	370	375
Yellowish gray limestone, organic breccia .....	375	380
Red shale and gray shale, with some black shale .....	380	385
Fire clay, some fragments, of coal and green shale.....	385	390
Greenish gray shaly sandstone .....	390	395
Like the preceding, with some limestone .....	395	400
Light gray micaceous shale .....	400	405
Light gray sandy shale .....	405	410
Dark gray stony shale .....	410	425
Micaceous gray sandy shale, with a few fragments of coal.....	425	430
Micaceous sandy shale and shaly sand, laminated, showing shreds of vegetation .....	430	435

## Logs—Concluded.

	Depth in feet.	
	From	To
Coarse gray sandstone with carbonaceous folla .....	432	439
Gray shale .....	439	445
Gray shale, micaceous .....	445	452
Coal, siderite concretions, pyrite crystals and a few white gypsum crystals .....	452	465
Gray micaceous shaly sandstone .....	465	471
Gray micaceous sandstone with infiltrated lime .....	471	478
Gray shale, gray sandstone .....	478	497
Coal, gray shale, dark limestone, pyrite and a few crinoid stems noted .....	497	504
Coal, pyrite, and a few crinoid stems noted .....	504	510
Coarse gray micaceous sandstone with infiltrated lime .....	510	523
Coarse gray micaceous sand .....	523	530
Gray micaceous sandy shale .....	530	536
Gray shale, fragments of coal and pyrite .....	536	543
Black shale, some limestone, and numerous crinoid stems noted ..	543	549
Gray micaceous sandstone .....	549	556
Dark limestone with <i>Chonetes punctatus</i> , <i>Rhombopora lepidodendroides</i> and showing some intensely green specks. Presence of <i>Fusulina</i> uncertain .....	556	562
Coal, some limestone .....	562	569
Gray sandy shale, some pyrite .....	569	575
Gray sandy micaceous shale .....	575	582
Coarse gray sand with fragments of black shale .....	582	588
Gray sandstone with some limestone .....	588	595
Gray shaly sandstone .....	595	608
Gray shale and sandstone .....	608	621
Gray shale .....	621	666
Black and gray shale .....	666	673
Black shale .....	673	679
Brown limestone, greenish and reddish, dolomitic, shaly limestone, and black gray shale .....	679	686
Gray limestone, some gray shale and fragments of brown limestone, two small gastropods .....	686	692
Coal, some gray and and brown limestone .....	692	699
Gray sandy micaceous shale .....	699	705
Gray shale .....	705	712
Gray sandy micaceous shale .....	712	725
Gray shale .....	725	731
Black shale .....	731	737
Black and gray shale .....	737	743
Black stiff shale .....	743	750
Coal, some gray shale .....	750	756
Coarse gray sandstone with infiltrated lime, fragments of coal, and gray shale .....	756	763
Gray sandy micaceous shale .....	763	769
Black shale, coarse gray sandstone, fragments of coal .....	769	775
Gray sandy shale, black shale .....	775	781
Gray micaceous shale, gray sandstone with infiltrated lime .....	781	787
Gray shale and gray micaceous shale .....	787	793
Gray shale .....	793	806
Black stiff shale .....	806	813
Coal, and fire clay .....	813	820
Gray shale .....	820	834
Gray micaceous sand and shale .....	834	840
Yellow micaceous sand .....	840	846
Gray shale .....	846	862
Gray shale with fragments of gray sandstone .....	862	873
Gray and black shale .....	873	884
Black shale .....	884	895
Gray shale .....	895	906
Gray sandstone with shreds of vegetation and a few fragments of coal .....	906	912
Gray sandstone with shreds of vegetation .....	912	923
Gray micaceous sandstone .....	923	928
White micaceous sand with fragments of shale .....	928	934
Gray laminated sandstone .....	934	940
Gray laminated sandstone, brown sandstone .....	940	952
Brown sandstone (note on sack "Oil 952 to 973"), gray sandstone ..	952	958
Brown sandstone, some gray sandstone .....	958	964
Brown sandstone, some gray sandstone, pyrite .....	964	970
Brown sandstone, some gray sand .....	970	975

## STRATIGRAPHY.

*Pleistocene.*

The records in Plate II give an idea of the difference in thickness of the drift overlying the hard rocks. Some records show it to be thin, due

to conditions of erosion and deposition. The drift, measures from 25 to 110 feet in the examined logs; while a number of logs over the field show an average of 75 feet to the bed rock, on which the drive-pipe is set.

### *Pennsylvanian.*

The Pennsylvanian or "Coal Measures" rocks are separable into three divisions; an upper part, the McLeansboro formation, middle part, the Carbondale formation, and a basal part, the Pottsville formation.

*McLeansboro Formation*—The rocks of the McLeansboro formation lie between the top of Herrin (No. 6) coal and bed rock near the surface. From measurements and estimates of logs in the section the average thickness of the formation is found to be about 485 feet. Shales and sandstones dominate in this division and are accompanied by several streaks of limestone and many coals. One well reports seven beds of coal. The most conspicuous bed of these rocks is the limestone used as a key line in the section. Dr. Udden describes it as a dark limestone containing *Fusulina* fossils. All of the records show notations of *Fusulina* except Nos. 2 and 3. The position of the bed is estimated in No. 2 by comparison with No. 1 and is thought to lie at a depth of about 560 feet. The black limestone at 490 feet in No. 3, although no *Fusulina* are reported, seems to correlate with other logs of the section and is designated as that horizon. An effort is being made by geologists to determine this bed over Illinois by its fossils and thus procure a definite marker for the Herrin (No. 6) coal immediately underneath.

The two limestones noted at 200 and 300 feet by Dr. Udden, in well No. 2, page 35; and alluded to as possibly equivalent to the limestone 160 feet above No. 6 coal at Belleville and the Carlinville limestone, suggest their possible correlations through the columnar section. The interval between the two limestones is about 130 feet. The interval between the upper or Carlinville (?) limestone and the "*Fusulina*" limestone is about 365 feet and the interval between the lower limestone and the key bed is about 220 feet. In other sections of the State, the Carlinville limestone is about 250 feet above the overlying limestone of the Herrin coal. The red shale spoken of elsewhere as lying in the McLeansboro is reported only in logs No. 4 and 7 at depths of 270 and 380 feet respectively. The intervals between the red bed and the "*Fusulina*" limestone are respectively 210 and 160 feet.

*Carbondale Formation*—The rocks of the Carbondale formation lie between the tops of Herrin (No. 6) and Murphysboro (No. 2) coals. The Herrin coal is the first beneath the "*Fusulina*" limestone. The Murphysboro coal lies above the Pottsville sandstones and is usually separated from these by shales or a thin limestone. The Carbondale formation is mostly shale, with sandy shales at the bottom. There are either three or four coals noted in each record. The columnar section shows much irregularity between the Herrin and the lowest coal. The thickness of the division varies from 200 to 450 feet. Logs 1, 2, 3, 7 and 8 show an average interval of 310 feet between the Herrin coal and the Pottsville. In type localities of other sections of Illinois, the interval is between 300 and 350 feet.



**Pottsville Formation**—The Pottsville rocks are the lowest members of the Pennsylvanian and are essentially coarse sandstones merging into sandy shales at the top and occasionally split with lenses of shale. The lower portions of the records used in the columnar section are predominantly sandstones and in position correspond with Pottsville beds. These rocks lie below the Murphysboro (No. 2) coal. The sandstone at the base of the sections is known as the Robinson sand. There are as many as four distinct lenses of this sand interbedded with shale. The upper portion of the sand rocks are oil-bearing but lower down they yield much salt water.

#### LAWRENCE COUNTY.

The explored rocks of Lawrence County lie in the Pennsylvanian and Mississippian series. These major divisions are overlain with unequal thicknesses of drift. The Pennsylvanian rocks are from 800 to 1,300 feet thick. This great variation in thickness is due to the unconformity at the top of the Mississippian, accentuated by preexisting structure and preglacial erosion. The Mississippian rocks are not completely penetrated but they have been well explored to a depth of 475 feet below their top.

The columnar section, Plate IIIA, is made up of logs from all sections of Lawrence county. They are plotted in order from south to north. The top of the wide-spread Ste. Genevieve limestone, known locally as the McClosky sand, is used as a key bed through the columnar section. All records are plotted with respect to this line. The section is made up of the following records, which correspond by number to those printed on Plate 3.

#### LOGS.

##### No. 1.

Operators—Snowden Bros.

Farm and well—Laughlin, No. 1.

Location—SE.  $\frac{1}{4}$  sec. 32, Lukin Township.

Elevation—469 feet.

	Thickness Feet	Depth Feet
Sand and clay, yellow, soft	20	20
Slate, white	15	35
Limestone shell	3	38
Slate, white	7	45
Limestone shell	3	48
Slate, white	12	60
Sand, loose, (water)	9	69
Slate, white	66	135
Limestone shells	5	140
Shale, black	40	180
Limestone shell	2	182
Slate, black, loose	18	200
Limestone shell, white	4	204
Slate	56	260
Sand, white loose (hole full of water, 290 feet)	30	290
Limestone	21	311
Slate, black and white	89	400
Limestone shell, white	4	404
Sandy limestone, white, (water, 410 feet)	6	410
Limestone shell, white	12	422
Slate, black	5	427
Limestone shell, gray	11	438
Red rock	7	445
Slate, white	55	500
Shale and slate, black	105	605

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*Logs—Continued.*

	Thickness Feet	Depth Feet
Sandy slate, white .....	21	626
Limestone shell .....	6	632
Shale, brown .....	58	690
Limestone shell .....	3	693
Slate, white .....	17	710
Shale, brown, hard .....	20	730
Slate, white, soft .....	50	780
Limestone shell, white .....	2	782
Slate, white .....	48	830
Sand, white, (salt water, 830 feet) .....	42	872
Broken lime, black, loose .....	5	877
Shale, black .....	3	880
Limestone shell, white .....	5	885
Slate, black, soft .....	55	940
Sand, brown, bridged .....	5	945
Slate, white .....	35	980
Slate and shale, black .....	96	1,076
Limestone and sand, (water, 1,086 feet) .....	10	1,086
Shale, black .....	10	1,096
Limestone, white .....	29	1,125
Slate, black .....	31	1,156
Sand and broken limestone, white, soft .....	24	1,180
Sandy slate, white .....	35	1,215
Slate, white, soft .....	20	1,235
Sandy shale .....	65	1,300
Limestone, white, hard .....	4	1,304
Sand, white, soft .....	11	1,315
Sandy clay, brown .....	23	1,338
Limestone, white .....	7	1,345
Slate, black .....	95	1,440
Limestone, white .....	10	1,450
Slate, white, soft .....	56	1,506
Sand, brown, (show of oil, 1,506 to 1,514 feet) .....	8	1,514
Limestone, white .....	100	1,614
Sand, (water) (show of oil, 1,705 to 1,732 feet) .....	118	1,732
Limestone .....	13	1,745
Slate .....	5	1,750
Sand, (hole full of water, 1,775 feet) .....	25	1,775
Slate .....	57	1,832
Limestone .....	18	1,850
Slate .....	15	1,865
Red rock .....	5	1,870
Limestone shell .....	5	1,875
Slate .....	20	1,895
Limestone .....	5	1,900
Slate .....	20	1,920
Red rock .....	10	1,930
Slate .....	55	1,985
Sand, (oil show, 1,985 to 2,000 feet) .....	15	2,000
Shale, hard, black .....	12	2,012
Slate .....	18	2,030
Limestone .....	70	2,100
Slate .....	30	2,130
Limestone .....	22	2,152
Sand, (show of oil) .....	4	2,156
Slate .....	4	2,160
Limestone .....	5	2,165
Total depth .....		2,165

*No. 2.*

Operators—Ohio Oil Company.

Farm and well—W. H. Snyder, No. 7.

Location—SW.  $\frac{1}{4}$  NW.  $\frac{1}{4}$  sec. 25, Dennison Township.

Elevation—495 feet.

(This record was compiled by Dr. J. A. Udden from an examination of well samples.)

	Depth in feet.	
	From	To
Loess .....	1	5
Loess, silty .....	5	20
Gray sandy limestone and micaceous and calcareous sand. Spher- ules of pyrite noted, measuring from $\frac{1}{4}$ to 1 mm. in diameter..	20	25
Micaceous gray sandstone with occasional shreds of carbonaceous material .....	25	35
Sandy shale .....	35	40

*Logs—Continued.*

	Depth in feet.	
	From	To
Gray shale.....	40	45
Gray sandstone, coal, black shale and pieces of gray limestone. There were crinoid stems, one crinoid plate from a calyx and an umbo of a small brachiopod.....	45	50
Light gray shale of fine texture. No effervescence.....	50	55
Gray calcareous and sandy rock, with much concretionary calcare- ous material. One large fragment was black concretionary limestone with imbedded minute white shells and tubes, appar- ently small gasteropods or formanifera.....	55	60
Shaly sandstone, some shale, white and yellow limestone of con- cretionary appearance, and some coal.....	60	65
Sandy shale of very light gray color.....	65	70
Dark gray micaceous shale.....	70	90
Dark shale and black shale, fragments of concretionary limestone, Nucula beyrichi (?) crinoid stems, tubes of Ammodiscus, and fragments of concretionary limestone.....	90	100
Black shale.....	100	105
Black shale, black calcareous "clod," occasional pieces of coal, crinoid stems, "mineral charcoal" showing woody structure, pyrite and calcite.....	105	110
Gray sandy micaceous shale.....	110	120
Gray micaceous sandstone.....	120	140
Gray sandy shale, black shale and coal, with some calcareous material.....	140	145
Gray sandy and micaceous shale.....	145	155
Fine gray sand.....	155	165
Fine gray shaly sand.....	165	170
Fine gray shaly sand with dark shaly laminae.....	170	175
Laminated shaly sandstone.....	175	180
Laminated gray sandy shale.....	180	185
Dark micaceous and sandy shale.....	185	195
Dark shale, micaceous.....	195	200
Sandy shale and sandstone.....	200	205
Coarse, micaceous gray sand.....	205	215
Micaceous gray shale.....	215	225
Dark shale of fine texture.....	225	230
Dark shale, black shale, some sandstone, impure coal, and frag- ments of limestone, yellow. Crinoid stems and a small gas- teropod noted.....	230	235
Fire clay, sandy shale, and concretionary yellow limestone, which is fossil-bearing. A few fragments of coal noted.....	235	240
Gray shale.....	240	245
Gray stony shale.....	245	250
Dark micaceous shale.....	250	255
Gray micaceous shale.....	255	260
Dark micaceous shale.....	260	265
Gray shaly sandstone and sandy shale.....	265	270
Gray micaceous sand of fine texture.....	270	310
Gray sand and some lumps of light fire clay or shale containing imprints of leaves.....	310	315
Clean and white micaceous sand.....	315	320
Gray micaceous sandstone.....	320	335
Light gray fire clay, coal, some sandstone, and a little limestone. Minute spherules of siderite present in the fire clay.....	335	340
Cream-white limestone of fine granular homogeneous texture, with occasional minute green specks, and occasional indistinct organic fragments.....	340	345
White limestone of fine uniform texture. Some fragments show a fine reticulate, clastic (?) structure. Some greenish shale and pyrite.....	345	350
Brownish red marly clay and limestone.....	350	355
Red marl, greenish marl, and white limestone.....	355	360
White limestone of fine uniform texture, with a few fragments of gray shaly limestone.....	360	365
Gray sandstone, bitittic and impregnated with irregular kernels and layers of yellow limestone.....	365	370
Some sandstone, some white limestone, yellow lime and some frag- ments of a slowly effervescing material.....	370	375
Dirty dark marl and limestone, with some fragments of bright red marl, and some black fragments.....	375	380
Gray sandstone.....	380	385
Very dark shaly sandstone, bituminous and green shale.....	385	390
Dark, almost black, sandy micaceous shale.....	390	400
Dark gray shale of fine texture.....	400	405
Gray micaceous shaly sandstone and some white limestone.....	405	410
Dark gray shale of fine texture, coal.....	410	415
Dark gray shale of fine texture and some white limestone.....	415	425
Gray micaceous laminated sandstone.....	425	430

*Logs—Continued.*

	Depth in feet.	
	From	To
Dark gray shale and some brown clay.....	430	435
Dark gray sandstone with layers of carbonate of iron.....	435	440
Dark gray micaceous shale, and dark gray sandstone with layers of carbonate of iron.....	440	445
Dark gray micaceous shale; dark gray sandstone with layers of carbonate of lime, and a few fragments of limestone.....	445	450
Dark gray shale, siderite and pyrite.....	450	455
Dark gray shale of fine texture and some siderite.....	455	460
Dark gray micaceous shale, and gray sandstone with layers of carbonate of iron.....	460	470
Dark gray shale, sandstone, and sandstone with carbonate of iron.....	470	475
Dark gray shale of fine texture and some siderite.....	475	480
Dark gray micaceous shale, and some siderite.....	480	485
Dark gray shale, dark micaceous shale, and siderite.....	485	495
Dark gray shale, white and dark limestone.....	495	500
Siderite concretions showing cracks filled with calcite, gray limestone and shale.....	500	505
Gray shaly sandstone, siderite concretions and some gray limestone.....	505	510
Gray shaly sandstone, fragments of white and gray limestone....	510	515
Gray sandy shale, siderite and fragments of gray limestone.....	515	520
Dark gray shale, some greenish shale, siderite, and fragments of gray limestone.....	520	525
Dark gray micaceous shale, and some siderite.....	525	530
Dark gray shale, some greenish shale and some siderite.....	530	535
Dark shale, siderite and some brown limestone.....	535	540
Dark shale, siderite, fragments of limestone, and a part of a crinoid stem noted.....	540	545
Dark shale and fragments of limestone.....	545	560
Black shale with organic calcareous fragments. Crinoid stems and Rhombopora lepidodendroides noted. Spherules of siderite present. Spines of Productus (?).....	560	565
Black shale with organic calcareous material, limestone, fragments of gray micaceous sandstone, numerous crinoid stems noted, also siderite. Hustedis, Chonetes punctatus, Rhombopora lepidodendroides, gasteropods and crinoid stems noted, as also spines of Productus (?).....	565	570
Black shale with calcareous material, fragments of limestone and sandstone, small gasteropods, numerous crinoid stems, and spines of producti noted.....	570	575
Coal, gray shale, limestone, numerous crinoid stems and pyrite noted.....	575	580
Brownish dark limestone, gray shale, and fragments of coal. Considerable pyrite, fossil wood in fragments.....	580	585
Brownish dark limestone, gray shale, some crinoid stems and Chonetes noted.....	585	590
Gray micaceous shale, gray shale, gray limestone and brown limestone.....	590	595
Gray sandy shale, fragments of brown and gray limestone.....	595	600
Dark gray shale of a fine texture and some pyrite.....	600	605
Dark gray shale of a fine texture, some gray micaceous shale, pyrite and fragments of coal.....	605	610
Dark gray shale of a fine texture.....	610	620
Dark gray micaceous shale.....	620	625
Dark gray shale and fragments of limestone.....	625	630
Dark gray micaceous shale and some pyrite.....	630	635
Dark gray shale, fragments of coal and limestone.....	635	640
Dark gray shale, fragments of limestone and some pyrite.....	640	645
Light gray sandstone of fine texture, and fragments of black shale.....	645	650
Light gray sandstone, and some fragments of black shale.....	650	660
Dark gray shale and light gray sandstone.....	660	665
Light gray micaceous fine sand.....	665	680
Fine white micaceous sand with infiltrated lime.....	680	685
Fine white micaceous sand and some dark gray shale.....	685	695
Fine gray micaceous sand with infiltrated lime.....	695	700
Dark gray shale and gray sandstone.....	700	705
Gray micaceous laminated sandstone.....	705	710
Coal, some gray shale, and a few fragments of limestone.....	710	715
Gray micaceous laminated sandstone and some coal.....	715	720
Micaceous sandstone.....	720	725
Dark gray shale.....	725	730
Black shale of fine texture.....	730	735
Very dark stony shale of fine texture.....	735	740
Gray micaceous sandstone, some black shale and fragments of white limestone.....	740	745
Gray micaceous sandstone, soft and containing calcareous material.....	745	750

*Logs—Continued.*

	Depth in feet.	
	From	To
Micaceous sandstone.....	750	755
Dark shale, sandstone, coal, with some limestone fragments.....	755	760
Fire clay, black shale, coal, sandstone, a few fragments of limestone, yellow siderite, spherical concretions, measuring from $\frac{1}{4}$ to 2 mm. in diameter.....	760	770
Dark shaly clay and micaceous clay, with coal, sandstone, and small spherical concretions of siderite.....	770	775
Dark clayey shale and some micaceous and sandy shale.....	775	780
Gray clayey shale of fine texture with some stony and micaceous shale.....	780	790
Dark gray shale, in part sandy, in part of fine texture. Much pyrite, some pyritized wood coal and "mineral charcoal".....	790	795
Light gray shale or fire clay.....	795	800
Light gray fire clay, white sandstone, coal and some fragments of white and yellow limestone.....	800	805
Gray clay shale or fire clay, coal, and white sandstone.....	805	810
Fire clay, sandy gray shale, black shale, coal and brown siderite..	810	815
Soft gray micaceous sandstone, with thin carbonaceous laminae black shale, brown siderite, pyrite and some fragments of fissured white limestone.....	815	820
Black shale containing calcareous organic fragments, and gray sandstone containing thin layers of shaly material, pyrite and spherules of gray lime measuring about $\frac{1}{4}$ mm. in diameter....	820	825
Dark shale and greenish gray sandy fire clay.....	825	830
Gray micaceous sandstone, fire clay and black shale with white limestone. Crinoid stems noted.....	830	840
Black shale and gray micaceous sandstone, brown siderite and white limestone and partly pyritized mineral charcoal.....	840	845
Gray micaceous sandstone, laminated, gray marly shale.....	845	850
Laminated dark shale and sandstone, with a few fragments of coal, apparently from thin seam in rock.....	850	855
Gray sandstone and sandy shale, with black shale, impure coal and siderite.....	855	860
Like the preceding but with some pure coal.....	860	865
Gray shale, fire clay, gray sandstone, and coaly black shale.....	865	870
Fire clay, gray shale, coal, brown siderite, white limestone, fragments of shells and crinoid stems, pyrite giving an oily film on the water when washed.....	870	875
Gray clayey shale, and coal, with some calcareous material....	875	880
Like the preceding. Crinoid joints noted.....	880	885
Gray clayey shale, containing fragments of coal and of limestone, and also some mica.....	885	900
Mostly fire clay, greenish gray, some gray sandstone, black shale, a little coal, and much pyrite. Fragments of shells and of limestone noted. In the fire clay a joint was filled with a thin film of black bituminous or carbonaceous material.....	900	905
Gray laminated micaceous sandstone.....	905	915
Dark gray, sandy and micaceous shale.....	915	920
Gray micaceous sandstone and dark shale.....	920	925
Gray sandstone, greenish fire clay and coaly black laminated shale.....	925	930
Gray laminated sandstone, black shale, some pieces of acereous shale, brown siderite, fragments of white limestone.....	930	935
Sandstone, from dark to light gray, and showing streaks of carbonaceous material, together with black coaly shale.....	935	940
Greenish gray fire clay, containing spherules of fire clay from $\frac{1}{4}$ to $\frac{1}{2}$ mm. in diameter, and having thin joints filled with bituminous or carbonaceous material. Some sandstone and shale noted.....	940	945
Greenish gray fire clay, with fractures.....	945	950
Dark shale of fine texture.....	950	955
Gray coarse sand with a faint odor of petroleum. It floats on water.....	955	960
Black and dark shale, with some carbonaceous layers.....	960	965
Dark and black shale and concretionary siderite and white limestone.....	965	970
Minutely black and light gray limestone.....	970	975
Minutely blotched dark gray limestone and some dark shale.....	975	980
Dark clayey shale.....	980	990
Black shale and gray sandstone.....	990	995
Black coaly shale with brownish streak and containing streaks of brown flaky siderite, greenish gray fire clay, gray limestone and stony fire clay filled with minute spherules of siderite....	995	1,000
Black and gray shale and a fragment of coal.....	1,000	1,005
Coarse quartz sandstone with fragments of siderite.....	1,005	1,010
Gray sandstone with siderite grains.....	1,010	1,015
Gray sandstone with many grains of brown siderite.....	1,015	1,020
Fairly coarse gray sand.....	1,020	1,030
Fine gray sand having the odor of petroleum.....	1,030	1,035

*Logs—Continued.*

	Depth in feet.	
	From	To
Fine gray and with some black and gray shale, white limestone, some yellow and brown siderite.....	1,035	1,040
Gray sandstone, some coarse with black and brown grains, some laminated, alternating with black micaceous shale.....	1,040	1,045
Black shale, some sandstone, and some white limestone.....	1,045	1,050
Black stiff shale, some clayey shale and white limestone.....	1,050	1,060
Black shale and fire clay with a few fragments of coal.....	1,060	1,065
Black shale, and some white limestone.....	1,065	1,075
Black shale, some pyrite and white limestone.....	1,075	1,080
Black shale and some pyrite.....	1,080	1,085
Gray sandstone with imbedded siderite spherules and shreds of carbonaceous material.....	1,085	1,090
Gray sandstone of fine texture.....	1,090	1,100
Gray sandstone of fine texture with some dark gray shale.....	1,100	1,105
Gray sandstone of fine texture.....	1,105	1,110
Gray sandstone with some fragments of white limestone.....	1,110	1,115
Laminated shaly sandstone, consisting of layers of dark sandy shale and light gray sandstone.....	1,115	1,120
Laminated sandstone and shale.....	1,120	1,130
Green and black fire clay of fine texture and cut by joints.....	1,130	1,140
Greenish blotchy very dark fire clay, with siderite concretions in large fragments, and some very red clay lumps with green core	1,140	1,145
Very dark, almost black, fire clay.....	1,145	1,150
Very dark, almost black, fire clay, or a greenish tinge, some bright red clay showing green streaks, some white limestone and some coal or bituminous substance.....	1,150	1,155
Very dark fire clay.....	1,155	1,160
Dark fire-clay-like shale.....	1,160	1,165
Black stiff shale and fragments of siderite concretions.....	1,165	1,170
Black shale and dark green shale.....	1,170	1,185
Black shale and gray shale, with some white sandstone and fragments of siderite concretions.....	1,185	1,190
Black shale.....	1,190	1,195
Black shale with some fragments of siderite.....	1,195	1,200
Dark gray shale of fine clay-like texture.....	1,200	1,205
Laminated white and black sandstone. The laminae are thin....	1,205	1,215
Dark shale.....	1,215	1,220
Dark shale with some sandstone.....	1,220	1,225
Dark shale.....	1,225	1,235
Dark sandy shale and laminated sandstone.....	1,235	1,240
Dark shale.....	1,240	1,245
Dark sandy shale and white, fine-grained sandstone, apparently in laminae. Also some fragments of white limestone.....	1,245	1,255
Gray shale, greenish fire clay, some coal and a little nodular limestone.....	1,255	1,260
Gray shale and dark shale, some yellow siderite, some white limestone and a few fragments of coal. Bituminous joints....	1,260	1,270
Gray shale, black shale, white sandstone of fine texture and white limestone.....	1,270	1,280
Gray shale, considerable white limestone, and white sandstone of fine compact texture.....	1,280	1,285
Black shale and white fine-grained sandstone with some limestone	1,285	1,290
Fine-grained, hard white sandstone, gray, sandy shale and white limestone.....	1,290	1,295
Micaceous gray sandstone, black shale, and some pieces of white limestone.....	1,295	1,300
Dark gray shale, white fine-grained sandstone, and some fragments of white limestone.....	1,300	1,305
Light gray micaceous sandstone, gray shale and some fragments of white limestone.....	1,305	1,310
Dark gray shale, laminated sandstone and some limestone.....	1,310	1,315
White, fine-grained sandstone, gray shale, white limestone and some pyrite.....	1,315	1,320
Sand, fairly coarse.....	1,320	1,325
Yellow rusty sand.....	1,325	1,340
Yellow rusty sand with some shale.....	1,340	1,345
Laminated gray sandstone of fine texture.....	1,345	1,355
Fine sand, with some shale and calcareous material.....	1,355	1,360
Fine sand and shale, with some carbonate of lime.....	1,360	1,365
Fine sand and shale.....	1,365	1,370
Dark gray shale and sand.....	1,370	1,380
Sand, gray shale and black shale.....	1,380	1,405
Greenish gray fire clay, some dark shale, considerable pyrite, and sand (from above).....	1,405	1,410
Greenish gray fire clay, much pyrite, a few fragments of rock containing organic calcareous fragments and some sand.....	1,410	1,415
Dark greenish gray shale, some fragments of black shale and pyrite.....	1,415	1,420



## Logs—Continued.

	Depth in feet.	
	From	To
Sand of fine texture and dark greenish gray shale or fire clay with much pyrite.....	1,420	1,425
Dark green fire clay or shale, very much pyrite and fragments of coal, evidently from a thin seam.....	1,425	1,430
Dark greenish gray fire clay, pyrite and fragments of impure coal.....	1,430	1,435
Dark green fire clay and dark shale with some coal.....	1,435	1,440
Very dark shale, thin splitting and dark green fire clay.....	1,440	1,445
Very dark shale, dark green fire clay, a little coal and pyrite.....	1,445	1,470
Dark green fire clay and dark shale, pyritiferous.....	1,470	1,480
Dark green fire clay-like shale.....	1,480	1,495
Dark green fire clay-like shale, with much pyrite, and some coal in thin seams.....	1,495	1,500
Dark green fire clay-like shale.....	1,500	1,510
Dark green fire clay-like shale, some black bituminous shale with thin laminae of coal, and with pyrite.....	1,510	1,515
Dark green fire clay-like shale, dark gray shale, "Coal Measure"-like, with pyrites.....	1,515	1,520
Dark green fire clay-like shale, and dark gray shale with pyrite.....	1,520	1,535
Brownish red marl, some fire clay-like greenish shale, some pyrite and some fragments of white limestone. The red marl and the limestone have the aspect of the Chester.....	1,535	1,540
Brownish red shale, pyrite and fragments of white limestone.....	1,540	1,545
Red marly shale, gray marly shale and white limestone.....	1,545	1,565
Dark gray shale and marl.....	1,565	1,570
Dark gray stony marl and fragments of white limestone, with crinoid stems.....	1,570	1,590
Gray marl and red marly shale with fragments of white limestone, gray, green and red shale, white limestone, sandy limestone, pyrite and crinoid stems.....	1,590	1,595
Greenish gray calcareous shale.....	1,595	1,615
Dark green, stony calcareous shale.....	1,615	1,635
Dark gray shale, organic, fragmental limestone, dirty specked gray.....	1,635	1,640
Shale and limestone.....	1,640	1,645
Gray marly shale and organic fragmental limestone Oily.....	1,645	1,650
Organic fragmental limestone and some shale. Oily.....	1,650	1,655
Dark gray shale, green shale, red shale and organic fragmental limestone. Oily.....	1,655	1,660
Like the preceding with less limestone.....	1,660	1,665
Red marly shale and green laminated shale.....	1,665	1,680
Red marly shale and dark green shale.....	1,680	1,685
Gray marly shale, gray sandstone of fine texture and some organic fragmental limestone.....	1,685	1,695
Gray marly shale.....	1,695	1,700
Fine gray quartz sand showing a few mica scales (and effervescing).....	1,700	1,730
Fine-textured gray sand with some shale.....	1,730	1,775
Fine-textured gray sand with some gray shale.....	1,755	1,760
Gray marly shale and sand.....	1,760	1,765
Fine-textured gray sand, dark gray shale, with some fragments of limestone showing joints filled with black bituminous films..	1,765	1,775
Gray marly shale and fine sand.....	1,775	1,780
Earthy black marly shale filled with bitumen.....	1,780	1,785
Partly like the preceding, partly gray stony marl.....	1,785	1,795
Gray marly shale and fine sand.....	1,795	1,800
Like the preceding with some very thin-splitting black shale....	1,800	1,805
Black shale and fine gray sand.....	1,805	1,810
Gray marly shale, and some black bituminous material shining on conchoidally fractured surfaces. Fractures and fuses in flame..	1,810	1,820
Gray marly shale.....	1,820	1,825
Gray marly shale, with a black bitumen showing conchoidal, shiny cleavage.....	1,825	1,830
Gray marly shale with a few small fragments of bitumen.....	1,830	1,835
Gray marly shale.....	1,835	1,840
Gray marly shale, with some fine micaceous sand, and showing black streaks.....	1,840	1,850
Gray marly shale.....	1,850	1,860
Almost black and dark, greenish gray, marly, sandy shale, showing red streaks, and a dark greenish sand of fine texture. Mica noted. Oily.....	1,860	1,865
Dark, greenish gray fire clay-like shale. Oily.....	1,865	1,880
Dark greenish-gray shale and sandy rock, and some red shale appearing earthy, from bitumen.....	1,880	1,885
Green and red shale, with some fragments of sandstone and some organic limestone. Oily.....	1,885	1,890
Oolitic limestone, and green shale.....	1,890	1,910
Oolitic limestone, other limestone, green shale and some red shale. A small Dielasma noted. The dark green shale splits into very thin fragments.....	1,910	1,915
	1,915	1,920

*Logs—Continued.*

	Depth in feet.	
	From	To
Green shale, dark shale, red shale, and oolitic limestone.....	1,920	1,930
Green shale, red shale, and some dirty looking limestone and oolite. Crinoid stem noted.....	1,930	1,945
Mostly iron rust from bit or casing.....	1,945	1,950
Limestone with a great deal of rust.....	1,950	1,955
Granular limestone with some well-rounded quartz sand, and some oolitic grains.....	1,955	1,960
Granular limestone, gray.....	1,960	1,965
Coarse oolitic limestone, with some quartz grains.....	1,965	1,970
An organic breccia, with imbedded oolitic grains, and some quartz grains.....	1,970	1,980
Organic fragmental limestone, with oolitic spherules, and with a few fragments of chert.....	1,980	1,995
Limestone, fragmental, oolitic.....	1,995	2,000

*No. 3*

Operators—Snowden Bros.

Farm and well—H. K. Seed, No. 3.

Location—NW.  $\frac{1}{4}$  sec. 29, Bridgeport Township.

Elevation—513 feet.

	Thickness Feet	Depth Feet
Soil, yellow .....	23	23
Slate, dark .....	17	40
Sand, white (12 bailers of water, 75 feet) .....	35	75
Slate, dark .....	65	140
Limestone, white .....	6	146
Slate, dark .....	90	236
Sand, white .....	49	277
Slate, dark .....	6	283
Limestone shell .....	5	288
Coal .....	6	294
Slate, dark .....	36	330
Limestone, light .....	15	345
Slate, light .....	63	408
Sand, light .....	31	439
Limestone, light .....	10	449
Red slate, light .....	6	455
Slate, light .....	155	610
Sand, light, hard .....	13	623
Slate, dark .....	17	640
Sand, light .....	15	655
Slate, dark .....	20	675
Limestone, dark .....	12	687
Slate, light .....	33	725
Slate, dark .....	57	782
Sand, light, hard .....	13	795
Slate, light .....	13	808
Coal .....	4	812
Slate, light .....	38	850
Slight, dark .....	12	862
Limestone, dark .....	4	866
Slate, dark .....	24	890
Sand, light (hole full of water, 905 feet) .....	35	925
Limestone and sand, light, hard .....	15	940
Slate, black, soft .....	20	960
Slate, light .....	45	1,005
Limestone, light .....	5	1,010
Slate .....	30	1,040
Sand .....	50	1,090
Slate .....	40	1,130
Sand, (hole full of water, 1,140 feet) .....	252	1,382
Slate, dark .....	2	1,384
Sandy limestone, light .....	41	1,425
Slate, black .....	2	1,427
Limestone, light .....	23	1,450
Sand and coal .....	17	1,467
Slate, dark .....	2	1,469
Sand and shells .....	1	1,470
Slate, dark .....	48	1,518
Sand, light, hard (water) .....	73	1,591
Slate, dark, soft .....	17	1,608
Sandy limestone, light .....	32	1,640
Sand, light, hard (hole full of water, 1,640 feet).....	47	1,687

*Logs—Continued.*

	Thickness Feet	Depth Feet
Slate, dark .....	16	1,703
Sand, dark .....	22	1,725
Limestone, light .....	4	1,729
Red rock .....	6	1,734
Slate .....	31	1,765
Limestone .....	21	1,786
Slate .....	7	1,793
Limestone .....	10	1,803
Red slate .....	7	1,810
Sand (water, 1,823 feet) .....	13	1,823
Slate .....	10	1,833
Limestone .....	20	1,853
Slate .....	12	1,865
Sand (water, 1,872 feet) .....	7	1,872
Red slate .....	6	1,878
Slate .....	12	1,890
Red slate .....	4	1,894
Sand (water, 1,916 feet) .....	22	1,916
Slate .....	6	1,922
Sand (hole full of water, 1,947 feet) .....	25	1,947
Slate .....	32	1,980
Limestone .....	2	1,982
Sand (oil pay, 1,982 to 1,995 feet) .....	19	2,001
Total depth .....		2,001

*No. 4.*

Operators—Snowden Bros.

Farm and well—O'Donnell, No. 28.

Location—SE.  $\frac{1}{4}$  sec. 17, Bridgeport Township.

Elevation—498 feet.

	Thickness Feet	Depth Feet
Sand and mud .....	129	129
Slate, light .....	31	160
Sand, white (10 ballers water, 225 feet) .....	165	325
Slate, dark .....	10	335
Limestone shell, hard .....	11	346
Red rock .....	9	355
Slate, light .....	120	475
Slate, dark .....	85	560
Slate, white .....	60	620
Slate, dark .....	100	720
Slate, black .....	15	735
Sand, white (4 ballers of water, 750 feet) .....	45	780
Slate, light .....	25	805
Sand, light .....	10	815
Slate, dark .....	40	855
Limestone shell .....	6	861
Slate, dark .....	60	921
Limestone shell, hard, gray .....	4	925
Slate, dark .....	37	962
Sand, white, hard (oil, 970 feet; water, 990 feet) .....	86	1,048
Slate, light .....	2	1,050
Sand, white, soft .....	20	1,070
Slate, light .....	25	1,095
Sand, white .....	40	1,135
Slate, dark .....	15	1,150
Sand, white .....	25	1,175
Slate, white .....	16	1,191
Limestone, light .....	12	1,203
Slate, dark .....	25	1,228
Slate, light .....	8	1,236
Slate, dark .....	44	1,280
Sand, dark (oil, 1,298 feet) .....	38	1,318
Sand, light (water, 1,360 feet) .....	77	1,395
Limestone, dark .....	15	1,410
Slate, dark .....	15	1,425
Sand, white .....	13	1,438
Slate, dark .....	9	1,447
Limestone, white .....	53	1,500
Slate, white .....	4	1,504
Limestone shell .....	2	1,506
Slate, dark .....	11	1,517
Slate, light .....	8	1,525

*Logs—Continued.*

	Thickness Feet	Depth Feet
Limestone, white .....	35	1,560
Slate, dark .....	25	1,585
Slate, light .....	8	1,593
Sand, light (show of oil, 1,600 to 1,606 feet) .....	32	1,625
Slate, dark .....	13	1,638
Sand, light .....	12	1,650
Slate, dark .....	28	1,678
Sand, light .....	54	1,730
Slate, dark .....	12	1,742
Limestone, light .....	15	1,757
Sand and limestone .....	8	1,765
Red slate .....	3	1,768
Limestone, light .....	10	1,778
Slate, dark .....	12	1,790
Red rock .....	8	1,798
Slate, light .....	15	1,813
Limestone (?), cavy .....	22	1,835
Limestone .....	20	1,855
Limestone, gray, hard, (show of oil, 1,860 feet) .....	20	1,875
Limestone, gray, soft .....	15	1,890
Limestone, dark, hard .....	333	2,223
Total depth .....		2,223

*No. 5.*

Operators—Ohio Oil Company.

Farm and well—W. B. Gray, No. 2.

Location—SW.  $\frac{1}{4}$  sec. 7, Bridgeport Township.

Elevation—486 feet.

(This record was compiled by Dr. J. A. Udden from the study of well samples.)

	Depth in feet. From To	
Yellow micaceous sandstone, with some quartz pebbles .....	1	10
White micaceous sandstone, with shreds of carbonaceous matter ..	10	30
White micaceous sandstone, with some fragments of siderite and pyrite .....	30	35
Gray sandstone, with shreds of vegetation .....	35	40
Gray sandy shale .....	40	45
Black shale and some gray micaceous sandstone .....	45	50
Black micaceous shale .....	50	55
"Clod," with numerous crinoid stems .....	55	60
Black shale and "clod" .....	60	65
Coal and "clod" .....	65	70
Coal, fragments of siderite concretions, limestone and some gray sandstone .....	70	75
Gray sandy shale .....	75	80
Black shale, "clod," some coal and some pure calcite .....	80	90
Dark micaceous shale and coal with calcite .....	90	95
Dark gray micaceous shale .....	95	100
Black shale, with a few crinoid joints .....	100	105
Black shale .....	105	110
Black shale with some limestone .....	110	115
Black shale .....	115	120
Hard black shale .....	120	130
Black shale .....	130	135
Black micaceous shale .....	135	140
Gray micaceous sand, with some black shale .....	140	145
Gray micaceous sandstone, with infiltrated lime, and shreds of carbonaceous matter .....	145	155
Gray micaceous sand .....	155	205
Gray sandstone, some black shale, and a little limestone .....	205	210
Black shale and gray sandstone, with a little limestone .....	210	215
Dull bluish green shale, with some yellowish limestone from concretions .....	215	220
Like the preceding, with fossils in the concretionary limestone ..	220	225
Shale, light, green gray unctious, shale .....	225	240
Greenish gray micaceous shale .....	240	245
Light greenish gray shale, unctuous .....	245	250
Light greenish gray micaceous shale .....	250	265
Gray micaceous sandy shale .....	265	270
Gray, rather coarse sandstone with occasional red, pink, green and black grains .....	270	275
Like the preceding, all crushed .....	275	280
Fire clay, fragments of concretions, sandstone .....	280	285

*Logs—Continued.*

	Depth in feet.	
	From	To
Fine clay and some shreds of carbonaceous material .....	285	290
Greenish blue shale, with concretionary yellow limestone .....	290	295
Black shale, with some bits of coal .....	295	300
Gray micaceous sandstone, with infiltrated lime, with some black shale and coal .....	300	305
Gray sandstone, in part laminated, with small siderite concretions .....	305	310
Gray micaceous sandstone with small siderite concretions .....	310	315
Gray sandstone with some black shale .....	315	320
Dirty white limestone, and some sand. Pyrite, crinoid joints, and spine of a <i>Productus</i> noted .....	320	325
Limestone and some shale .....	325	330
Limestone of light color, some gray shale and pyrite. Limestone seems to be concretionary .....	330	335
Gray shale and black shale with yellow concretionary limestone ..	335	350
Dark gray shale and some yellow concretionary limestone .....	350	355
Dark gray shale with some pyrite .....	355	360
Dark gray shale, some white limestone and pyrite .....	360	365
Dark gray shale .....	365	380
Dark shale with some fragments of siderite concretions .....	380	390
Sandstone, shale and coal .....	390	395
Shale, with some sandstone and coal .....	395	400
Greenish gray shale .....	400	405
Olive colored shale .....	405	410
Laminated sandy shale .....	410	415
Sandy gray shale .....	415	420
Shale, stony, olive colored .....	420	425
Gray shale .....	425	430
Dark shale, almost black .....	430	435
Gray shale .....	435	460
Gray shale, coal and concretion fragments .....	460	465
Gray fire clay, coal and shale .....	465	470
Gray shale, and gray concretionary limestone, impure, with iron carbonate and with pyrite .....	470	475
Limestone, concretionary and shale .....	475	480
Gray shaly fire clay and concretionary limestone, effervescing slowly .....	480	485
Gray concretionary siderite .....	485	490
Gray shale, with much concretionary impure limestone or siderite ..	490	515
Gray sandy shale, and siderite .....	515	520
Gray micaceous shale, some coal and siderite .....	520	535
Gray sandstone, laminated and with minute spherules of siderite ..	535	540
Gray shale, with some sandy shale and some black shale .....	540	545
Dark stony shale .....	545	550
Dark micaceous shale with some limestone with crinoid stem .....	550	555
Dark gray shale .....	555	560
Dark micaceous shale and clod with a <i>Productus</i> .....	560	565
Gray shale .....	565	570
Very dark shale and "clod" .....	570	575
Black clay shale with "clod" .....	575	580
Greenish gray micaceous sandy shale .....	580	590
Gray micaceous shale .....	590	605
Greenish gray clayey shale .....	605	615
Black stony shale and some red clay shale .....	615	620
Very dark stony shale .....	620	625
Dark checky shale or fire clay .....	625	630
Dark gray micaceous shale .....	630	635
Dark shale or fire clay, with imprint of leaf .....	635	640
Dark hard shale, slightly micaceous .....	640	645
Gray shale, with some siderite .....	645	650
Gray shale .....	650	655
Gray shale and some gray sandstone .....	655	660
Hard gray shale, with a few pieces of sandstone .....	660	665
Hard gray shale, with a few pieces of siderite .....	665	670
Dark and hard shale .....	670	675
Dark hard shale .....	675	685
Coal and dark shale, with some siderite and pyrite .....	685	690
Coal, with some shale and some siderite .....	690	695
Dark shale and some siderite, coal, and pyrite, bit of shell noted ..	695	700
Gray shale and coal, with concretions of siderite, and black shale, with leaf imprints, calcareous .....	700	705
Gray shale, fire clay and coal, calcareous .....	705	710
Gray shale and fire clay calcareous .....	710	715
Like the preceding, with wood in pyrite .....	715	720
Gray clay shale, fine in texture .....	720	725
Black shale, sandstone, and coal .....	725	730
Gray sandstone and dark gray sandy shale .....	730	740
Gray sandstone, and shale .....	740	755
Black miner's slate .....	755	760
Dark shale, carrying much fine pyrite .....	760	765

## Logs—Continued.

	Depth in feet.	
	From	To
Gray shale, impregnated with small pyrite crystals.....	765	770
Gray shaly sandstone and black shale .....	770	775
Coal, sandstone and some yellow limestone (apparently from a ledge) .....	775	780
Gray micaceous and sandy shale, some red clay shale .....	780	785
Gray shale, coaly shale and shaly coal, with gray limestone and fragments of concretionary siderite .....	785	790
Gray clay shale, with some concretionary fragments .....	790	795
Gray shale, some black shale and siderite concretions .....	795	800
Gray shale, some black carbonaceous shale and some fire clay ..	800	805
Gray shale, some black coaly shale, a few bits of white limestone and minute concretionary spherules .....	805	810
Gray shale containing many minute spherules of siderite and some white limestone .....	810	815
Dark shale and fire clay .....	815	820
Dark shale, with some imprints of vegetation .....	820	825
Dark shale and some sandstone, with some minute spherules of siderite .....	825	830
Black shale and gray shale, with some sandstone, some minute spherules of siderite and a few bits of limestone .....	830	835
Black shale, some sandstone and some pieces of siderite .....	835	840
Gray micaceous shale .....	840	845
Black hard shale, with pyrite, shell of Retzia (?), some spicules and a few bits of white limestone .....	845	850
Black stony shale, with pyrite .....	850	855
Black shale, with pyrite and pieces of siderite .....	855	860
Black shale, and white fine grained sandstone, laminated with a few small pieces of very white limestone .....	860	865
Gray laminated sandstone and black shale .....	865	870
Black shale and laminated sandstone, with some grayish soft material and a few bits of white limestone .....	870	875
Coal, with some gray limestone .....	875	880
Gray sandy shale and fragments of concretionary siderite, with some coal .....	880	885
Black shale and gray shale, with some fragments of yellow limestone and concretionary material .....	885	890
Dark gray shale, with a little limestone, and some green serpentine-like shale .....	890	895
Dark gray shale and greenish shale with red blotches, with a few fragments of limestone .....	895	900
Dark gray shale and gray sandy shale .....	900	905
Gray sandy shale with minute crystals of pyrite .....	905	910
Dark gray shale and gray sandstone, with shreds of vegetation ..	910	915
Dark gray shale and some sandstone .....	915	920
Gray shaly sandstone and sandy shale .....	920	925
Dark gray sandy shale, pyritiferous .....	925	930
Dark gray sandy shale .....	930	935
Gray clay shale .....	935	940
Gray shale and limestone. The limestone is white, and consists of rounded fragments which are invested with an oolitic incrustation .....	940	945
Dark and stony thin splitting shale and light sandstone .....	945	950
White and gray sandstone and dark gray shale. Sandstone occasionally with interstitial pyrite .....	950	955
Dark gray shale and white sandstone .....	955	960
Dark greenish gray shale .....	960	965
Black shale of fine texture .....	965	970
Dark gray shale, with siderite partly in fragments, partly as spherules .....	970	975
Dark gray sandstone and dark shale .....	975	980
Dark shaly sandstone and black shale .....	980	985
Black shale, with many fragments of siderite .....	985	990
Black shale .....	990	995
Black shale, and gray limestone which contains a tangle of tubes of Ammodiscus .....	995	1,000
Dark gray and black shale with limestone as above .....	1,000	1,005
White and gray sandstone and gray shale .....	1,005	1,010
White, slightly micaceous sandstone and gray shale .....	1,010	1,015
Gray laminated shaly sandstone .....	1,015	1,020
Gray sandstone .....	1,020	1,025
Laminated gray sandstone and white sandstone .....	1,025	1,030
Yellow sandstone .....	1,030	1,035
Coarse white sand .....	1,035	1,040
Yellow sand .....	1,040	1,045
Red sand .....	1,045	1,050
White sand, finer .....	1,050	1,055
Reddish sand .....	1,055	1,060
Gray sand .....	1,060	1,065
	1,065	1,070
	1,070	1,075
	1,075	1,080
	1,080	1,085
	1,085	1,090
	1,090	1,095
	1,095	1,100
	1,100	1,105
	1,105	1,110
	1,110	1,115
	1,115	1,120
	1,120	1,125
	1,125	1,130
	1,130	1,135
	1,135	1,140
	1,140	1,145
	1,145	1,150
	1,150	1,155
	1,155	1,160
	1,160	1,165
	1,165	1,170
	1,170	1,175
	1,175	1,180

## Logs—Continued.

	Depth in feet.	
	From	To
White sand.....	1,185	1,195
Black shale, with some few small fragments of red shale (?).....	1,195	1,200
Black shale and sand with pyrite.....	1,200	1,205
Gray fire clay with shreds of vegetation.....	1,205	1,210
Black clay shale, gray sand.....	1,210	1,315
Black shale, gray fire clay-like shale with shreds of vegetation and sandstone.....	1,215	1,220
Dark fire clay, shale, with shreds of vegetation with some gray sand.....	1,220	1,230
Fire clay, dark shale and sandstone.....	1,230	1,240
Gray shale and sand.....	1,240	1,245
Gray fire clay, and gray sandstone with spherules of siderite.....	1,245	1,250
Black stony shale with large fragments of pyrite and some gray compact siliceous rock.....	1,250	1,260
Black shale showing shreds of vegetation and some gray rock....	1,260	1,280
Laminated dark and gray sandy and stony shale showing mica and shreds of vegetation, very much comminuted.....	1,280	1,345
Black shale with pyrites and some sandstone.....	1,345	1,350
Coarse sand showing secondary enlargement of grains, with some black shale.....	1,350	1,370
	Diameter of grains in mm.	Percentage of total sample.
	2-1 .....	0
	1-½ .....	5
	½-¼ .....	10
	¼-⅛ .....	80
Less than ⅛ .....		5.00
Gray sand of somewhat finer texture than the preceding.....	1,370	1,375
Gray coarse sandstone and some black shale.....	1,375	1,385
Like the preceding, but with finer sand.....	1,385	1,390
Coarse sand and some gray shale.....	1,390	1,395
Sand, white.....	1,395	1,435
	Diameter of grains in mm.	Percentage of total sample.
	2-1 .....	0
	1-½ .....	3
	½-¼ .....	6
	¼-⅛ .....	85
Less than ⅛ .....		6
White sand.....	1,435	1,455
Fine reddish sand.....	1,455	1,460
Fine gray sand.....	1,460	1,465
Fine yellow sand.....	1,465	1,480
White limestone, with some sand.....	1,480	1,485
Like the preceding, with two minute echinoid stems.....	1,485	1,490
Yellowish organic limestone.....	1,490	1,495
White limestone containing fragments of fossils and with a few fragments of chalcedonic chert and with much dark shale.....	1,495	1,500
Organic calcareous fragments with dark shale and coarse white sand.....	1,500	1,515
Dolomitic (?) limestone, with an occasional purple tint, mixed with much shale and sand.....	1,515	1,520
Yellowish sandstone, with some shale and dolomitic (?) calcareous fragments.....	1,520	1,530
Limestone, organic, fragmental gray, calcareous, with some shale and sand. Some shale is green.....	1,530	1,545
Dark gray organic fragmental limestone, with some green shale..	1,545	1,550
Like the preceding, with more shale.....	1,550	1,555
Gray and greenish shale and gray calcareous limestone, with a fragment of a fossil shell.....	1,555	1,560
Gray calcareous organic limestone and greenish shale.....	1,560	1,565
Fine gray sand and shale with pyrite.....	1,565	1,570
Gray sandstone and shale.....	1,570	1,575
Dark gray shale, gray sandstone and limestone.....	1,575	1,580
Black shale, showing a few brown blotches.....	1,580	1,585
Black shale, with green and red shale, some limestone and pyrite..	1,585	1,590
Dark gray shale, with green and some red shale and limestone....	1,590	1,600
Like the preceding, with two thin flakes of coal and a few bits of red limestone.....	1,600	1,605
Dark gray and greenish gray shale, some white sandstone and some red shale, with some fragments of limestone.....	1,605	1,610
Like the preceding but more sandy. Pyrite.....	1,610	1,615
Gray fine sand, gray and black shale and limestone and pyrite....	1,615	1,620
Gray fine sand and dark gray shale.....	1,620	1,625
Black and greenish shale with sandstone and pyrite.....	1,625	1,630
Black shale, and gray sand.....	1,630	1,635

*Logs—Continued.*

	Depth in feet.	
	From	To
Black shale and gray sandy shale, with bits of red shale.....	1,635	1,640
Gray shale.....	1,635	1,640
Black shale, greenish shale and sandstone.....	1,640	1,645
Greenish gray shale and some white sand.....	1,645	1,650
Gray and green shale with sand. One fragment of bitumen noted, which burned when ignited.....	1,650	1,655
Black and gray shale and sand in about equal quantities.....	1,655	1,660
Slickensided greenish gray shale and fine sand.....	1,660	1,665
Sandstone and dark shale.....	1,665	1,670
Sandstone, dark shale and some calcareous lime.....	1,670	1,675
Gray fine sand.....	1,675	1,685
Sand and dark shale.....	1,685	1,695
White limestone, dark gray shale and sand effervescing slowly....	1,695	1,700
Fine yellow sand.....	1,700	1,710
Fine gray sand.....	1,710	1,715
Black and dark gray shale.....	1,715	1,740
Dark gray shale and some gray limestone, oolitic grains (?).....	1,740	1,750
Grayish white fine sand.....	1,750	1,760
Grayish white sand and some shale, effervescing slowly.....	1,760	1,765
Dark gray and black shale with some sand.....	1,765	1,775
Calcareous limestone with slow effervescence and dark gray and red shale oolitic grains $\frac{1}{2}$ - $\frac{1}{4}$ mm. in diameter.....	1,775	1,780
Gray calcareous limestone with bits of brachiopod shells, spines, occasional oolitic grains, and dark gray and dull red shale. Oolites frequently oval.....	1,780	1,785
Like the preceding, with more sand and more oolitic grains.....	1,785	1,795
Dark shale, some oolitic limestone.....	1,795	1,800
Dark shale, oolitic limestone and some red shale.....	1,800	1,805
Dark shale, red shale, oolitic limestone and lobster colored limestone.....	1,805	1,810
Like the preceding but with less limestone.....	1,810	1,815
Dark greenish gray shale, and dark red shale with limestone, organic.....	1,815	1,825
Like the preceding, with a few limestone fragments of "lobster" red color.....	1,825	1,830
Dark gray, gray and red shale with organic limestone, with slow effervescence.....	1,830	1,835
Oolitic limestone effervescing slowly and black and red shale....	1,835	1,855
Oolitic white calcareous limestone.....	1,855	1,865
Gray limestone effervescing slowly.....	1,865	1,890
Fine gray sand, pure, grain, measuring about 1-6 mm. in diameter	1,890	1,895
Gray limestone, effervescing slowly with acid.....	1,895	1,900
Gray limestone, calcareous.....	1,900	1,905
Gray calcareous limestone with a few bits of chalcedonic chert....	1,905	1,940
Gray limestone, with slow effervescence, with some fragments of chert.....	1,940	1,945
Gray oolitic calcareous limestone.....	1,945	1,950
Gray oolitic limestone effervescing slowly, fragments of ribbed lamellibranch noted.....	1,950	1,965
Gray oolitic limestone, effervescing slowly.....	1,965	1,970
Gray marl.....	1,970	1,975
Gray marl and some limestone.....	1,975	1,980
Gray very finely granular dolomitic and oolitic limestone, with chalcedonic chert.....	1,980	1,985
	1,985	2,000

*No. 8.*

Operators—Bridgeport Oil Company.

Farm and well—McPherson, No. 3.

Location—SE.  $\frac{1}{4}$  sec. 11, Lawrence Township.

Elevation—429 feet.

	Thickness Feet	Depth Feet
Limestone .....	9	90
Slate .....	65	155
Sandy limestone .....	45	200
Slate .....	15	215
Coal .....	5	220
Slate .....	15	235
Limestone .....	15	250
Slate .....	150	400
Limestone .....	40	440
Slate .....	100	540
Limestone .....	8	548
Slate .....	52	600



*Logs—Continued.*

	Thickness Feet	Depth Feet
Limestone	5	605
Sand, (hole full of water, 625 feet)	95	700
Slate	45	745
Sand	30	775
Slate	115	890
Limestone	6	896
Slate	44	940
Sand	50	990
Slate	5	995
Sandy limestone	35	1,030
Sand (water)	30	1,060
Slate	165	1,225
Limestone	55	1,280
Sand	52	1,332
Limestone	10	1,342
Red rock	23	1,365
Slate	7	1,372
Limestone	3	1,375
Slate	35	1,410
Limestone	20	1,430
Red rock	10	1,440
Slate	20	1,460
Limestone	20	1,480
Slate	10	1,490
Red rock	15	1,505
Slate	13	1,518
Sand (first oil, 1,520 feet; best oil, 1,543 feet)	49	1,567
Limestone	23	1,590
Slate	55	1,645
Sand	15	1,660
Limestone	10	1,670
Slate	15	1,685
Limestone	77	1,762
Sand (water, 1,766 feet)	6	1,768
Total depth		1,768

*No. 7.*

Operators—Bridgeport Oil Company.

Farm and well—McPherson, No. 4.

Location—SW.  $\frac{1}{4}$  sec. 12, Lawrence Township.

Elevation—425 feet.

	Thickness Feet	Depth Feet
Gravel and quicksand	85	85
Sand	25	110
Slate	28	138
Limestone	7	145
Slate	55	200
Sand	30	230
Limestone	5	235
Red rock	5	240
Limestone	10	250
Slate	140	390
Limestone	5	395
Coal	5	400
Limestone	40	440
Slate	90	530
Limestone	10	540
Slate	45	585
Sand (water)	90	675
Slate	15	690
Sand	35	725
Slate	65	790
Sand	15	805
Slate	65	870
Sand	10	880
Slate	20	900
Limestone	5	905
Slate	50	955
Sand (water)	45	1,000
Slate	2	1,002
Sand	63	1,065
Limestone	10	1,075

*Logs—Continued.*

	Thickness Feet	Depth Feet
Slate .....	105	1,180
Sand .....	8	1,188
Limestone .....	2	1,190
Slate .....	140	1,330
Sand .....	20	1,350
Limestone .....	5	1,355
Slate .....	15	1,370
Limestone .....	89	1,459
Red rock .....	8	1,467
Limestone .....	8	1,475
Slate .....	34	1,509
Limestone .....	13	1,522
Slate .....	5	1,527
Sand (show of oil) .....	19	1,546
Slate .....	12	1,558
Sand (oil pay, 1,558½ feet; water, 1,563 feet) .....	17	1,575
Slate .....	25	1,600
Limestone .....	50	1,650
Slate .....	15	1,665
Limestone .....	5	1,670
Slate .....	15	1,685
Red rock .....	10	1,695
Slate .....	5	1,700
Limestone .....	71	1,771
Sand .....	4	1,775
Limestone .....	83	1,858
Sandy limestone .....	6	1,864
Limestone .....	122	1,986
Total depth .....		1,986

## No. 8.

Operators—Bridgeport Oil Company.

Farm and well—R. M. Kirkwood, No. 7.

Location—NE. ¼ sec. 14, Lawrence Township.

Elevation—435 feet.

	Thickness Feet	Depth Feet
Sand and gravel .....	83	83
Limestone .....	10	93
Slate .....	32	125
Limestone .....	15	140
Slate .....	70	210
Sand (water) .....	25	235
Slate .....	10	245
Limestone .....	5	250
Slate .....	45	295
Limestone .....	5	300
Slate .....	25	325
Limestone .....	20	345
Slate .....	95	440
Sand .....	10	450
Slate .....	180	630
Sand (water) .....	87	717
Slate .....	38	755
Limestone .....	8	763
Slate .....	10	773
Sand .....	27	800
Limestone .....	20	820
Slate .....	40	860
Sand .....	20	880
Slate .....	20	900
Sand .....	20	920
Slate .....	40	960
Sand (water) .....	90	1,050
Slate .....	120	1,170
Sand .....	10	1,180
Slate .....	50	1,230
Limestone .....	6	1,236
Slate .....	8	1,244
Limestone .....	21	1,265
Slate .....	11	1,276
Limestone .....	9	1,285
Sand .....	85	1,370

*Logs—Continued.*

	Thickness Feet	Depth Feet
Slate .....	30	1,400
Limestone .....	20	1,420
Slate .....	15	1,435
Limestone .....	30	1,465
Slate .....	30	1,495
Limestone .....	25	1,520
Red rock .....	15	1,535
Slate .....	5	1,540
Sand (oil, 1,551 feet) .....	40	1,580
Slate .....	5	1,585
Sand (water) .....	5	1,590
Slate .....	5	1,595
Sand .....	10	1,606
Slate .....	5	1,610
Limestone .....	20	1,630
Slate .....	20	1,650
Sandy limestone .....	25	1,675
Slate .....	20	1,695
Limestone .....	10	1,705
Red Rock .....	5	1,710
Limestone .....	57	1,767
Sand .....	8	1,775
Total depth .....		1,775

*No. 9.*

Operators—Snowden Bros.

Farm and well—Cummings, No. 12.

Location—NE.  $\frac{1}{4}$  sec. 6, Bridgeport Township.

Elevation—516 feet.

	Thickness Feet	Depth Feet
Soil .....	25	25
Slate .....	102	127
Limestone, gray, soft .....	8	135
Sand, white .....	45	180
Slate, dark .....	12	192
Sand, light .....	80	272
Slate, dark .....	20	292
Limestone, light, hard .....	13	305
Slate, light, soft .....	18	323
Slate, dark .....	257	580
Limestone, light .....	9	589
Slate, dark .....	311	800
Limestone, light hard .....	4	804
Slate and limestone shells, dark, soft .....	126	930
Sand, light (little oil, 940 feet) .....	40	970
Slate and limestone shells .....	15	985
Sand, light .....	15	1,000
Slate, light (water, 1,006 feet) .....	20	1,020
Slate and limestone shells .....	45	1,065
Slate, white .....	70	1,135
Sand, light, soft .....	15	1,150
Slate, black .....	15	1,165
Sand, white (water, 1,175 feet) .....	50	1,215
Slate, white .....	5	1,220
Limestone, white, soft .....	20	1,240
Slate, white, hard .....	30	1,270
Sand .....	5	1,275
Slate, light, soft .....	5	1,280
Limestone, white .....	14	1,294
Slate, dark .....	21	1,315
Limestone, gray .....	16	1,331
Slate, dark .....	14	1,345
Sand, gray (gas, 1,347 feet) .....	18	1,363
Slate, light .....	3	1,366
Limestone, white .....	19	1,385
Slate, dark .....	4	1,389
Sand, gray .....	7	1,396
Slate, light .....	19	1,415
Red slate .....	10	1,425
Sand, light (oil, 1,428 feet) .....	15	1,440
Slate, light .....	15	1,455

*Logs—Continued.*

	Thickness Feet	Depth Feet
Sand, light.....	15	1,470
Red slate.....	7	1,477
Slate and limestone shells, dark.....	33	1,510
Limestone, light.....	15	1,525
Slate, white.....	35	1,560
Sand and limestone shells, white.....	5	1,565
Slate, white.....	7	1,572
Limestone, white.....	28	1,600
Slate, white.....	25	1,625
Limestone, light.....	31	1,656
Sand (show of oil and gas, 1,656 feet).....	3	1,659
Limestone.....	13	1,672
Sand.....	3	1,675
Limestone.....	58	1,733
Total depth.....		1,733

*No. 10.*

Operators—Ohio Oil Company.

Farm and well—S. G. McCleave, No. 4.

Location—Center of section 31, Bridgeport Township.

Elevation—520 feet.

	Thickness Feet	Depth Feet
Loess.....	1	15
Yellow limestone and coal, some pieces of pure calcite, and numerous crinoid stems.....	15	20
Coal, yellow sandstone, some crinoidal limestone and a few pieces of calcite and red marl. Numerous crinoid stems.....	20	25
Coal, yellow sandstone, some crinoidal limestone and a few pieces of calcite and red marl. Numerous crinoid stems.....	25	30
Gray micaceous sandstone with infiltrated lime, some yellow sandstone, bits of coal and calcite.....	30	35
Coal, some yellow and white sandstone, some pieces of crinoidal limestone.....	35	40
Gray micaceous sandstone, some dark shale and fire clay.....	40	45
Coal. Some crinoidal limestone, a little red oxidized material. A small <i>Athyris</i> shell noted, also a piece of crinoid calyx (?)....	45	50
White micaceous sandstone, a few pieces of fire clay and coal....	50	55
Gray micaceous laminated sandstone, some fragments of yellow limestone, some coal.....	65	70
Gray micaceous sandstone, a few fragments of yellow limestone and coal.....	70	75
Yellow sandstone, crinoidal limestone, some black shale and pieces of gypsum. Two <i>Ambocoelia planoconvexa</i> and a crinoid stem noted.....	75	80
Black shale, some dark limestone, and a few pieces of sandstone. A crinoid stem noted.....	80	85
Gray limestone and coal, with some sandstone and shale.....	85	90
Gray micaceous shale.....	90	95
Yellow limestone, some gray sandstone, and bits of siderite.....	95	100
Yellow limestone and gray sandstone, some siderite concretions and shale.....	100	105
Gray shale and fire clay.....	105	110
Dark shale, some siderite concretions, and bits of white limestone.	110	115
Coal, some black shale, gray sandstone, a few bits of calcite and pyrite.....	115	120
Gray micaceous sandy shale, some dark shale and coal, some pieces of yellow limestone and fire clay.....	120	125
Dark shale, some coal, a few pieces of limestone.....	125	130
Dark shale, some red oxidized material, and siderite concretions..	130	135
Coal, some gray micaceous shale, and gray sandstone.....	135	140
Gray micaceous shale, some coal and fire clay.....	140	145
Gray micaceous shale and sandstone, some siderite concretions, a few bits of white limestone.....	145	150
Gray micaceous shale and a few bits of siderite concretions.....	150	155
Siderite, concretionary, some gray micaceous shale.....	155	160
Coal and gray sandstone, some concretionary siderite, some bits of limestone and pyrite. A crinoid stem noted.....	160	165
White sandstone with infiltrated lime.....	165	180
Fine gray sand with infiltrated lime.....	180	185
Fine gray micaceous sand with infiltrated lime, some gray shale.....	185	190
Fine gray sand with infiltrated lime.....	190	210

*Logs—Continued.*

	Thickness Feet	Depth Feet
White micaceous sand.....	210	225
Sand, with infiltrated lime, and some coal.....	225	230
Coal, some white limestone and black shale, some siderite.....	230	235
Gray micaceous shaly sandstone, some bits of coal, pyrite, and siderite .....	235	240
Yellow sand with infiltrated lime; the smaller grains float on water .....	240	245
Gray micaceous sandstone, some small spherules of siderite concretions, a few pieces of pyrite and white limestone.....	245	250
Gray sandstone, some siderite concretions (spherules), some dark shale, and bits of white limestone.....	250	255
Dark sandy micaceous shale, some gray sandstone, and siderite..	255	265
White sandstone.....	265	280
Gray micaceous sandstone, some pieces of laminated sandstone..	280	310
White micaceous sand.....	310	320
White limestone, indistinctly fragmental, a little sand and some gray shale.....	320	325
White limestone like the above, a little dark shale. A crinoid stem noted.....	325	330
White, indistinctly fragmental limestone. Some bits of pyrite, and a crinoid stem noted.....	330	335
Greenish compact limestone, and micaceous sandstone, with some shale .....	335	340
Gray shale, some sandstone.....	340	345
Gray micaceous sandy shale.....	345	350
Gray micaceous shale, some yellow limestone, and one piece containing woody fibre (?).....	350	355
Gray sandy shale, some yellow limestone, and a few siderite concretions .....	355	360
Gray shale, micaceous sandy shale, and some yellow limestone...	360	365
Gray sandstone, some laminated yellow sandstone, some yellow limestone, fragments of siderite.....	365	370
Gray shale and sandstone, some siderite concretions.....	370	375
Gray sandy shale, some siderite concretions. Carbonaceous shreds noted in shale.....	375	380
Siderite concretions, some sandy shale .....	380	385
Gray sandy shale, some concretionary siderite and bits of gray sandstone .....	385	390
Gray sandstone and sandy shale. A few pieces of black carbonaceous shale, coal, some sandstone with infiltrated lime, and some crinoid stems. <i>Retzia punctulifera</i> noted .....	390	395
Gray sandstone, dark shale, some white limestone, concretionary siderite. A crinoid stem and <i>Athyria</i> noted. A little coal noted .....	395	400
Gray shale and some sandstone, concretionary siderite, bits of pyrite, and a few pieces of sandstone with infiltrated lime....	400	405
Gray sandy shale, and some concretionary siderite .....	405	410
White brecciated limestone, with cracks filled with yellow calcite, some yellow limestone, some siderite, a little gray shale, and sandstone with bits of pyrite .....	410	415
White limestone, cracks filled with yellow calcite, some concretionary siderite .....	415	420
White limestone, having cracks filled with yellow calcite, some yellow limestone, some gray soft shale, and a few bits of coal .....	420	430
White and yellow limestone, cracks filled with calcite, some gray sandstone and a few pieces of black shale .....	430	435
Gray shale and concretionary siderite .....	435	450
Dark gray shale and siderite concretions .....	450	475
Gray sandy shale, some gray sandstone, siderite, and a few fragments of yellow limestone .....	475	480
Gray sandy shale, some pieces of which have layers of siderite, yellow limestone and bits of pyrite .....	480	485
Gray micaceous shale, some gray sandstone, few small fragments of yellow limestone .....	485	490
Gray micaceous shale .....	490	495
Dark shale, some siderite concretions, a few pieces of white limestone and pyrite .....	495	500
Dark shale, some coal and concretionary siderite, and a few pieces of dark limestone. A crinoid stem noted, also some oolitic black concretionary material .....	500	505
Dark shale and some siderite, a few bits of white limestone, coal, and pyrite. Crinoid stem and closely tuberculated crinoid spine noted, also a spiral <i>Ammodiscus</i> . <i>Rhombopora</i> , <i>lepidodendroides</i> , and black shale with fucoidal traversions .....	505	510
Dark shale, some siderite, white limestone, fragments and bits of coal and pyrite. Crinoid stems and a small <i>Syntrielasma hemiplicate</i> noted .....	510	515
Gray micaceous shale, some gray sandstone and yellow limestone .....	515	520

*Logs—Continued.*

	Thickness Feet	Depth Feet
Gray micaceous shale, some sandstone, some pieces of yellow limestone .....	520	525
Gray micaceous shale .....	525	530
Gray micaceous shale, and some sandstone .....	530	535
Gray micaceous shale and some siderite .....	535	540
Gray micaceous shale, some siderite, and a few bits of yellow limestone .....	540	545
Gray sandy shale, some yellow sandstone, bits of yellow limestone and pyrite .....	545	550
Black shale with streaks of pyrite, some siderite concretions, and bits of white limestone .....	550	555
Black shale, some siderite concretions, and white limestone. Crinoid stem noted .....	555	560
Black shale and a few siderite concretions .....	560	565
Yellow concretionary limestone and black shale. Some siderite. More shale than limestone .....	565	570
White and yellow concretionary limestone, some dark shale and gray sandstone, bits of pure calcite, and pyrite. More shale than limestone .....	570	575
Black carbonaceous shale and coal, some white limestone and siderite, and some bits of pyrite .....	575	580
Dark shale, some pieces of yellow limestone .....	580	585
Dark shale, few pieces of yellow limestone and white sandstone, a few pieces of calcite .....	595	600
Dark micaceous shale, some yellow limestone, with layers of calcite, and some sandy shale .....	600	605
Gray sandy shale, some yellow limestone, bits of white sandstone and pyrite .....	605	610
Gray sandy shale, some pieces of dark limestone, and bits of pyrite .....	610	615
Dark sandy shale, some pieces of pyrite .....	615	620
Dark gray micaceous shale, some pieces of yellow limestone, and siderite concretions .....	620	625
Dark gray shale, some pieces of yellow limestone and siderite. A crinoid stem noted .....	625	630
Gray shale .....	630	635
Gray shale, a few siderite concretions, and crinoid stems .....	635	640
Gray sandy shale, some yellow limestone, and concretionary carbonate of iron .....	640	645
Gray shale, some coal and siderite .....	645	650
Soft gray shale, some yellow limestone, and siderite .....	650	655
White limestone, some "clod" and sandstone .....	655	660
Black "clod," some yellow limestone, and soft gray shale .....	660	665
"Clod," with little white limestone and crinoid stems .....	665	670
"Clod," crinoid stems, and Edmondia (?), with some white limestone .....	675	680
Gray shale, yellow limestone and some "clod" .....	680	685
Yellow limestone and gray sandstone, some concretionary siderite and gray shale .....	685	690
Soft gray shale, yellow limestone, and some sandstone .....	690	695
Gray micaceous sandy shale, yellow and white limestone, some "clod," and some pyrites .....	695	700
Gray micaceous shale, some siderite, some white limestone, and pieces of calcite, with some sandstone .....	700	705
Gray, sandy shale, some black shale, and siderite with a few pieces of coal .....	705	710
Gray sandy shale, some coal, and siderite .....	710	715
Gray sandstone and some black carbonaceous shale .....	715	720
Coal and some fire clay .....	720	725
Black shale .....	725	735
Hard black shale .....	735	740
Black shale, a little white sandstone .....	740	745
Gray sandstone, some black pyritiferous shale, and yellow limestone .....	745	750
Gray sandstone, bits of yellow limestone .....	750	755
Gray micaceous sandstone, some pieces laminated, and bits of yellow limestone .....	755	760
Gray shale and sandstone, some imprints of leaves in shale .....	760	765
Dark shale, some sandstone, laminated and micaceous, bits of yellow limestone .....	765	770
Gray micaceous sandstone and dark shale, some yellow limestone .....	770	780
Gray micaceous sandstone, some dark shale, a few bits of limestone .....	780	785
Gray micaceous sandstone and some dark shale .....	785	790
Dark gray micaceous shale, bits of yellow limestone, and siderite .....	790	795
Black micaceous shale .....	795	800
Gray shale and some black micaceous shale .....	800	805
Gray shale, with some imprints of vegetation .....	805	810
Dark micaceous shale and some pieces of yellow limestone .....	810	815
Dark shale, some fragments of yellow limestone .....	815	820

## Logs—Continued.

	Thickness Feet	Depth Feet
Gray micaceous sandstone, some shale, bits of yellow limestone (small) .....	820	825
Gray micaceous sandstone, a little shale and limestone.....	825	835
Gray sandstone, with concretionary yellow limestone.....	835	840
Gray sandstone, some yellow limestone, and white limestone, with some pieces of dark limestone .....	840	845
Gray micaceous sandstone, some gray shale, and a few pieces of yellow limestone .....	845	850
Dark gray shale, some gray sandstone, few pieces of yellow limestone, and yellow calcite. Crinoid stems and a piece of shell noted .....	850	855
Black shale and a little white limestone. Crinoid stems and a piece of brachiopod shell noted .....	855	860
Black shale and a little yellow limestone. Piece of shell and crinoid stem noted .....	860	865
Black shale, few pieces of yellow and white limestone.....	865	870
Black shale, some concretionary siderite, and bits of yellow limestone .....	870	875
Black shale and some gray shale .....	875	880
Black shale, some siderite and gray sandstone .....	880	885
Gray micaceous sandstone and few pieces of shale.....	885	890
Gray sandstone, few pieces of yellow limestone, and dark shale..	890	895
Gray micaceous shale, some sandstone .....	895	900
Gray micaceous shale .....	900	905
Gray micaceous shale and some dark shale .....	905	910
Dark and gray micaceous shale .....	910	915
Dark gray shale and a few pieces of white limestone.....	915	920
Dark gray shale, bits of limestone, and pyrite .....	920	925
Black shale .....	925	930
Black shale and some fire clay, bits of sandstone .....	930	935
Gray sandstone and some dark sandy shale .....	935	940
Dark sandy shale and sandstone, bits of yellow limestone.....	940	945
Dark sandy shale and sandstone .....	945	950
Dark shale, some sandy shale .....	950	955
Gray micaceous shaly sandstone .....	955	960
Gray micaceous sandy shale and sandstone .....	960	970
Gray micaceous shaly sandstone, some black shale .....	970	975
Gray micaceous sandy shale, bits of yellow limestone.....	975	980
White micaceous sand, a little dark shale .....	980	985
White micaceous sand, some dark laminated shale .....	985	990
Gray sandstone and some dark micaceous shade. Sandstone with infiltrated lime, some pieces of laminated sandstone .....	990	995
White micaceous sand, some dark shale .....	995	1,000
White micaceous sand, little dark shale .....	1,000	1,005
Gray micaceous sand .....	1,005	1,010
Gray micaceous sandstone, some dark shale .....	1,010	1,015
Gray micaceous sandstone .....	1,015	1,025
Gray shale .....	1,025	1,035
Dark gray shale .....	1,035	1,040
White micaceous sand, grains mostly from $\frac{1}{8}$ to $\frac{1}{4}$ mm. in diameter .....	1,040	1,045
White micaceous sand .....	1,045	1,065
White micaceous sand with a little infiltrated lime .....	1,065	1,070
White micaceous sand with some infiltrated lime, a little dark shale .....	1,070	1,080
Gray micaceous sandstone and shale .....	1,080	1,085
White micaceous sand with some infiltrated lime .....	1,085	1,090
Yellow micaceous sand .....	1,090	1,125
Yellow sand .....	1,125	1,130
Yellow sand, showing secondary enlargement of grains.....	1,130	1,135
Yellow sand .....	1,135	1,140
Yellow sand and some dark shale .....	1,140	1,145
Gray sand with some secondary enlargement of crystals.....	1,145	1,150
White sand, very fine .....	1,150	1,155
White sand .....	1,155	1,160
Fine white sand .....	1,160	1,165
White sand and some gray shale .....	1,165	1,170
Fine white sand .....	1,170	1,175
Fine white sand with some infiltrated lime .....	1,175	1,180
Yellow sand .....	1,180	1,190
Yellow sand with infiltrated lime .....	1,190	1,210
White sand, grains mostly from $\frac{1}{8}$ to $\frac{1}{4}$ mm. in diameter.....	1,210	1,215
Fine white sand .....	1,215	1,230
White sand, some grains show secondary enlargement .....	1,230	1,235
White sand .....	1,235	1,280
Yellowish sand .....	1,280	1,290
Yellow sand and some white limestone .....	1,290	1,300
White limestone and sand .....	1,300	1,305
Like the preceding, but with more lime .....	1,305	1,310
Greenish shale with some flakes of mica, some white and dark limestone. Some imprints of leaves .....	1,310	1,315

*Logs—Continued.*

	Thickness Feet	Depth Feet
Greenish shale, or a fire clay, some limestone, and bits of pyrite.		
Imprints of vegetation .....	1,315	1,320
Gray sandstone, some pieces of pyrite, and greenish shale like in the preceding .....	1,320	1,325
Gray sandstone with some flakes of mica .....	1,325	1,330
A tangled organic oolitic limestone, breccia and some sandstone..	1,330	1,335
A tangle of organic oolitic limestone, effervescence, brisk. Some greenish shale and sand, bits of pyrite .....	1,335	1,345
A tangle organic oolitic limestone, breccia, some pieces of green and red shale .....	1,345	1,350
Oolitic limestone, some dark shale, bits of green and red shale and two pieces of chert .....	1,350	1,355
A tangled organic oolitic limestone, breccia, some black, greenish and brown shale .....	1,355	1,370
Black shale and limestone, like that of the preceding sample....	1,370	1,375
Black shale and some oolitic limestone, effervescence brisk.....	1,375	1,380
Black and green shale, white limestone .....	1,380	1,390
Black shale and some sandstone .....	1,390	1,395
Black shale and a little sandstone .....	1,395	1,400
Greenish and red shale, some limestone, effervescence brisk. Bits of chert and pyrite .....	1,400	1,405
Dark shale and some reddish colored limestone, effervescence brisk	1,405	1,410
Dark and reddish brown shale, some gray limestone .....	1,410	1,415
Dark shale and some gray limestone, a little red shale .....	1,415	1,420
Black shale and a little limestone .....	1,420	1,425
Black marly shale and some white limestone. Bits of pyrite and red shale .....	1,425	1,435
White limestone, some black marly shale and red shale, numerous crinoid stems .....	1,435	1,440
Black shale, some marly shale and white limestone, crinoid stems and pieces of shells .....	1,440	1,445
White limestone and dark shale .....	1,445	1,450
White limestone and dark shale, some yellow sandstone.....	1,450	1,455
Grayish yellow sandstone with infiltrated lime, some dark shale and white limestone .....	1,455	1,470
Gray sandstone, some black shale .....	1,470	1,475
Red shale, some greenish sandstone with infiltrated lime and little gray sandstone .....	1,475	1,480
Dark sandy calcareous shale, some white limestone and red shale	1,480	1,485
Coarse gray sand and some black shale .....	1,485	1,490
Coarse gray sand .....	1,490	1,500
White sandstone with infiltrated lime and some dark shale.....	1,500	1,515
Gray sandstone and a little dark shale .....	1,515	1,535
Black shale .....	1,535	1,550
Black shale, some yellowish sandstone with infiltrated lime.....	1,550	1,560
Black shale and white limestone. A few fragments of shells.....	1,560	1,565
Black shale and white sandstone, little limestone .....	1,565	1,585
Black shale, white limestone, effervescence brisk, and some sand..	1,585	1,590
Black shale and some white fragmental limestone, crinoid stem noted .....	1,590	1,595
Black shale .....	1,595	1,600
Black shale and a little limestone .....	1,600	1,605
Black shale and some sandstone, and white limestone.....	1,605	1,610
Gray sand, white limestone, (effervescence brisk), and a little dark shale .....	1,610	1,620
White limestone and dark shale .....	1,620	1,625
Black shale and a little limestone .....	1,625	1,645
Black shale and some limestone. A crinoid stem noted.....	1,645	1,650
Black shale and some limestone .....	1,650	1,660
Black shale .....	1,660	1,665
Black and red shale, some white limestone .....	1,665	1,670
Black shale, some red shale and oolitic limestone, (effervescence brisk) .....	1,670	1,680
Greenish and reddish shale, some oolitic limestone .....	1,680	1,685
Greenish shale, some red shale, and some oolitic limestone.....	1,685	1,690
Oolitic limestone, a little sand and greenish shale .....	1,690	1,710
Oolitic limestone .....	1,710	1,740
Oolitic limestone, little greenish shale and bits of pyrite.....	1,740	1,745

## No. 11.

Operators—Snowden Bros.

Farm and well—Perkins, No. 19.

Location—SW.  $\frac{1}{4}$  sec. 32, Bridgeport Township.

Elevation—529 feet.

	Thickness Feet	Depth Feet
Soil and slate .....	140	140
Sand .....	45	185



*Logs—Continued.*

	Thickness Feet	Depth Feet
Slate .....	15	200
Sand .....	75	275
Slate .....	30	305
Limestone .....	10	315
Slate .....	20	335
Slate and shale .....	106	441
Sandy shale .....	10	451
Slate .....	95	536
Limestone .....	8	544
Slate .....	96	640
Limestone .....	5	645
Slate .....	70	715
Limestone .....	6	721
Slate .....	79	800
Limestone .....	5	805
Slate .....	43	848
Sandy limestone .....	6	854
Slate, white .....	10	864
Slate, brown .....	46	910
Sand (show of oil, 930 to 950 feet) .....	46	956
Slate, brown .....	10	966
Slate, gray .....	84	1,050
Sand (water, 1,075 feet) .....	115	1,165
Slate .....	40	1,205
Sandy limestone .....	10	1,215
Slate .....	15	1,230
Limestone .....	7	1,237
Slate .....	23	1,260
Red rock .....	10	1,270
Slate .....	24	1,294
Limestone .....	22	1,316
Slate .....	17	1,333
Sand .....	12	1,345
Limestone .....	22	1,367
Shale .....	29	1,396
Red rock .....	11	1,407
Sand .....	30	1,437
Red rock .....	12	1,449
Slate .....	43	1,491
Limestone .....	3	1,494
Slate .....	21	1,515
Sand (oil, 1,520 feet) .....	18	1,533
Slate .....	21	1,554
Limestone .....	13	1,567
Shale .....	7	1,574
Limestone .....	8	1,582
Slate .....	16	1,598
Limestone .....	7	1,605
Slate .....	11	1,616
Limestone (gas, 1,654 feet) .....	70	1,686
Sand (oil, 1,686 to 1,696 feet) .....	10	1,696
Limestone .....	106	1,802
Total depth .....		1,802

*No. 12.*

Operators—Bridgeport Oil Company.  
 Farm and well—Willey, No. 4.  
 Location—SE.  $\frac{1}{4}$  sec. 30, Petty Township.  
 Elevation—517 feet.

	Thickness Feet	Depth Feet
Mud and slate .....	22	22
Sand .....	10	32
Slate .....	128	160
Sand .....	20	180
Slate .....	65	245
Limestone .....	5	250
Slate .....	25	275
Limestone .....	10	285
Red rock .....	5	290
Slate .....	110	400
Limestone .....	5	405
Shale .....	25	430

*Logs—Continued.*

	Thickness Feet	Depth Feet
Coal .....	3	432
Shale .....	7	440
Limestone .....	5	445
Slate .....	155	600
Limestone .....	65	665
Slate, black .....	20	685
Sand .....	30	715
Slate .....	35	750
Salt sand .....	25	775
Slate .....	40	815
Limestone .....	15	830
Slate .....	67	897
Sand (oil, 907 feet) .....	35	932
Slate .....	18	950
Sand .....	6	956
Slate .....	8	964
Sand (oil, 972 to 983 feet) .....	21	985
Slate .....	23	1,008
Limestone and shale .....	34	1,042
Limestone .....	20	1,062
Sand (water, 1,077 feet) .....	33	1,095
Limestone .....	5	1,100
Sand (water, 1,145 to 1,195 feet) .....	95	1,195
Limestone .....	10	1,205
Slate .....	40	1,245
Red rock .....	10	1,255
Slate .....	7	1,262
Limestone .....	43	1,305
Slate .....	25	1,330
Sand (gas, 1,335 feet) .....	10	1,340
Limestone .....	15	1,355
Slate .....	33	1,388
Red rock .....	7	1,395
Sand (first pay, 1,411 feet; best pay, 1,416 to 1,430 feet) .....	50	1,445
Slate .....	13	1,458
Limestone .....	42	1,500
Sand .....	10	1,510
Slate .....	30	1,540
Limestone (gas, 1,548 feet; best gas, 1,630 to 1,635 feet) .....	95	1,635
Total depth .....		1,635

*No. 13.*

Operators—Snowden Bros.

Farm and well—A. Pepple, No. 7.

Location—NW.  $\frac{1}{4}$  sec. 30, Petty Township.

Elevation—430 feet.

	Thickness Feet	Depth Feet
Soil and slate .....	15	15
Sand, white .....	90	105
Slate and shells .....	90	195
Sand, white .....	25	220
Slate and shells .....	80	300
Limestone, gritty, hard .....	10	310
Slate, white .....	40	350
Slate and limestone shells .....	80	430
Sand .....	12	442
Slate .....	108	550
Sand .....	20	570
Shale, black .....	20	590
Slate .....	30	620
Sand, white (hole full of water, 660 feet) .....	85	705
Slate, white .....	79	784
Limestone, white .....	2	786
Slate, black .....	29	815
Sand, white (hole full of water, 895 feet) .....	115	930
Slate, black .....	45	975
Sand, dark, hard .....	50	1,025
Slate, black, soft .....	25	1,050
Sand, white, hard .....	32	1,082
Sandy limestone, dark, hard .....	33	1,115
Slate, dark .....	5	1,120
Sand, white (water) .....	53	1,173

*Logs—Continued.*

	Thickness Feet	Depth Feet
Slate, black	27	1,200
Sand, white	10	1,210
Slate, black	8	1,218
Red rock	7	1,225
Slate, black	13	1,238
Limestone shells, white	10	1,248
Slate, black	12	1,260
Limestone, white	8	1,268
Slate, black	10	1,278
Red rock	6	1,284
Slate and shale	14	1,298
Limestone, white	7	1,305
Sand, white	13	1,318
Slate, black	20	1,338
Red rock	22	1,360
Sand, white (oil, 1,365 to 1,380 feet)	40	1,400
Limestone, gritty, black	5	1,405
Slate, black	25	1,430
Sand, white	10	1,440
Limestone, gray	10	1,450
Slate, white	20	1,470
Limestone, white	16	1,486
Slate, black	17	1,503
Sandy limestone, white (gas, 1,513 to 1,515 feet)	15	1,518
Sand, white	32	1,550
Sandy limestone	7	1,557
Limestone, white	5	1,562
Limestone, brown	18	1,580
Sandy limestone, white (green oil, 1,603 feet)	26	1,606
Limestone, white	13	1,619
Total depth		1,619

*No. 14.*

Operators—Snowden Bros.

Farm and well—Vanatta, No. 2.

Location—NE.  $\frac{1}{4}$  sec. 23, Petty Township.

Elevation—430 feet.

	Thickness Feet	Depth Feet
Clay and quicksand	75	75
Slate	75	150
Sand (16 ballers of water, 160 feet)	50	200
Slate	100	300
Limestone	30	330
Slate	470	800
Sand, hard (water, 850 feet)	50	850
Slate, soft	160	1,010
Sand, hard	100	1,110
Slate, soft	55	1,165
Sand, hard	225	1,390
Limestone	50	1,440
Red rock	15	1,455
Slate, soft	75	1,530
Sand, hard	35	1,565
Slate	35	1,600
Sand, hard (show of oil, 1,618 feet)	18	1,618
Slate	50	1,668
Limestone	32	1,700
Slate	40	1,740
Sand, hard (green oil)	25	1,765
Slate	68	1,830
Limestone (show of oil, 1,945 feet; hole full of water, 2,325 feet)	760	2,590
Total depth, dry well		2,590

*No. 15.*

Operators—Snowden Bros.

Farm and well—Childress, No. 3.

Location—SW.  $\frac{1}{4}$  sec. 24, Petty Township.

Elevation—440 feet.

*Logs—Continued.*

	Thickness Feet	Depth Feet
Quicksand .....	50	50
Sand, limestone, and slate .....	220	270
Limestone shells .....	15	285
Slate and limestone shells .....	135	420
Coal and slate .....	13	433
Slate and limestone shells .....	52	485
Slate, brown .....	10	495
Sandstone, white (25 ballers of water, 500 to 525 feet) .....	35	530
Slate, black .....	10	540
Slate and limestone shells, white .....	95	635
Coal .....	7	642
Slate and limestone shells .....	133	775
Limestone .....	25	800
Red rock .....	10	810
Slate and limestone shells .....	30	840
Limestone, white .....	10	850
Slate and limestone shells, black .....	130	980
Sandy limestone, white .....	40	1,020
Sand, white and brown (hole full of water, 1,020 to 1,065 feet) ..	275	1,295
Sandy limestone, brown .....	20	1,315
Slate, brown .....	20	1,335
Slate, sand, and shells, white .....	55	1,380
Limestone, white .....	25	1,405
Slate .....	15	1,420
Red rock .....	7	1,427
Slate and limestone shells, black .....	13	1,440
Sand .....	44	1,484
Slate .....	16	1,500
Red shale .....	8	1,508
Slate .....	8	1,516
Sand (small show of oil, 1,520 to 1,560 feet) .....	54	1,570
Slate, black .....	50	1,620
Limestone shells, white .....	5	1,625
Sandy slate, white .....	25	1,650
Red rock .....	8	1,658
Limestone, white .....	8	1,666
Sand, white, hard (oil) .....	29	1,695
Slate and limestone shells, black .....	37	1,732
Limestone .....	44	1,776
Sand (water, 1,781 feet) .....	7	1,783
Total depth .....		1,783

*No. 16.*

Operators—Bridgeport Oil Company.

Farm and well—Wood, No. 13.

Location—NW. ¼ sec. 20, Petty Township.

Elevation—430 feet.

	Thickness Feet	Depth Feet
Gravel and quicksand .....	90	90
Limestone .....	10	100
Sand .....	20	120
Slate .....	115	235
Limestone shells .....	5	240
Red rock .....	10	250
Slate .....	20	270
Sand .....	30	300
Slate and limestone .....	390	690
Salt sand .....	35	725
Slate and limestone .....	150	875
Sand, broken .....	30	905
Limestone and slate .....	95	1,000
Sand .....	75	1,075
Slate and limestone shells .....	55	1,130
Sand .....	100	1,230
Limestone, hard .....	15	1,245
Slate .....	25	1,270
Limestone .....	5	1,275
Sand .....	19	1,294
Limestone .....	4	1,298
Red rock .....	10	1,308
Slate .....	12	1,320
Limestone .....	5	1,325
Slate .....	15	1,340
Limestone .....	25	1,365

*Logs—Continued.*

	Thickness Feet	Depth Feet
Slate .....	15	1,380
Sand .....	10	1,390
Limestone .....	10	1,400
Slate and broken sand .....	80	1,480
Limestone .....	10	1,490
Slate .....	20	1,510
Limestone .....	12	1,522
Slate and limestone shells .....	58	1,580
Red rock .....	2	1,582
Limestone .....	8	1,590
Sand (green oil) .....	15	1,605
Limestone .....	15	1,620
Slate .....	10	1,630
Limestone .....	40	1,670
Sand .....	12	1,682
Limestone, hard .....	6	1,688
Limestone, soft .....	10	1,698
Sand (salt water) .....	7	1,705
Total depth .....		1,705

*No. 17.*

Operators—Snowden Bros.

Farm and well—Vanatta, No. 1.

Location—NE.  $\frac{1}{4}$  sec. 15, Petty Township.

Elevation—475 feet.

	Thickness Feet	Depth Feet
Sand, dark .....	10	23
Slate .....	400	423
Slate and limestone shells .....	50	473
Limestone shell, white .....	8	481
Red slate .....	12	493
Slate .....	125	618
Sand (little water, 633 feet) .....	15	633
Shell and slate .....	100	733
Slate .....	150	883
Sand, white .....	20	903
Shale, dark .....	100	1,003
Sand, white (water, 1,023 feet) .....	20	1,023
Slate and limestone shells, dark .....	72	1,095
Sand, white (water, 1,115 feet) .....	20	1,115
Slate, dark .....	77	1,192
Sand, light .....	18	1,210
Limestone, gray .....	20	1,230
Slate, white .....	85	1,315
Sand, white .....	55	1,370
Slate .....	60	1,430
Limestone, light .....	20	1,450
Slate, dark .....	60	1,510
Limestone, light .....	5	1,515
Slate, dark .....	5	1,520
Sand, light .....	76	1,596
Slate, dark .....	7	1,603
Limestone, light .....	10	1,613
Slate, dark .....	22	1,635
Sand, gray .....	13	1,648
Red slate .....	12	1,660
Slate, white .....	18	1,678
Limestone shell .....	7	1,685
Slate, white .....	3	1,688
Limestone, light .....	22	1,710
Slate, light .....	33	1,743
Limestone, light .....	20	1,763
Sand, white .....	99	1,862
Slate, dark .....	6	1,868
Limestone, light .....	5	1,873
Slate, dark .....	23	1,896
Limestone, light .....	41	1,937
Sand, white .....	8	1,945
Slate .....	13	1,958
Limestone, gray .....	12	1,970
Sandy limestone (water, 1,970 feet) .....	15	1,985
Limestone, gray .....	10	1,995
Slate, dark .....	8	2,003

*Logs—Continued.*

	Thickness Feet	Depth Feet
Sandy limestone, hard .....	17	2,020
Limestone, light, hard (water, 2,025 feet) .....	28	2,048
Sandy limestone, hard .....	20	2,068
Limestone, gray, hard .....	12	2,080
Sandy limestone, hard (water, 2,110 feet) .....	95	2,175
Limestone, gray, hard .....	60	2,235
Limestone, light, hard (hole full of water, 2,593 feet) .....	358	2,593
Limestone, dark, hard (4 ballers of water, 2,235 to 2,607 feet) ..	82	2,675
Sandy limestone, gray .....	40	2,715
Limestone, dark, hard .....	25	2,740
Limestone, gray, hard .....	15	2,755
Limestone, white, hard .....	15	2,770
Limestone, gray, medium hardness. Limestone, gray hard .....	166	2,936
Total depth .....		2,936

*No. 18.*

Operators—Snowden Bros.

Farm and well—Piper, No. 10.

Location—SE. ¼ sec. 2, Petty Township.

Elevation—439 feet.

	Thickness Feet	Depth Feet
Soil, dark .....	25	25
Gravel, light .....	10	35
Mud, dark .....	35	70
Limestone, light .....	8	78
Slate, light .....	172	250
Sand, light (water, 295 feet) .....	75	325
Limestone, light .....	7	332
Red rock .....	13	345
Sand, white .....	30	375
Slate, dark .....	98	453
Limestone shell, light .....	2	455
Slate, dark .....	25	480
Coal .....	3	483
Slate, black .....	57	540
Limestone, light .....	80	620
Sand, light (5 ballers of water, 625 feet) .....	20	640
Slate and limestone shells .....	25	665
Sand .....	20	685
Slate .....	65	750
Sand, light .....	25	775
Limestone, light .....	20	795
Red shale .....	5	800
Shells and slate .....	30	830
Slate, light .....	28	858
Sand, light .....	17	875
Slate, dark .....	35	910
Sand, white (water, 931 feet) .....	21	931
Limestone, dark .....	9	940
Slate, light .....	20	960
Sand, white .....	120	1,080
Slate, black .....	70	1,150
Sand, light .....	40	1,190
Slate and limestone shells .....	70	1,260
Sand, light .....	10	1,270
Slate and limestone shells .....	30	1,300
Slate, light .....	60	1,360
Limestone, light .....	15	1,375
Slate and shells, light .....	50	1,425
Limestone .....	20	1,445
Slate .....	5	1,450
Sand .....	25	1,475
Red rock .....	6	1,481
Sand, light (show of oil, 1,481 feet) .....	20	1,501
Slate, dark .....	10	1,511
Sand, dark .....	19	1,530
Slate, dark .....	20	1,550
Limestone, light .....	5	1,555
Slate, light .....	5	1,560
Limestone, light .....	4	1,564

*Logs—Concluded.*

	Thickness Feet	Depth Feet
Slate, dark .....	27	1,591
Sand, light .....	29	1,620
Slate, light .....	10	1,630
Limestone shells and sand .....	25	1,655
Limestone shells and slate .....	40	1,695
Limestone .....	13	1,708
Total depth .....		1,708

## STRATIGRAPHY.

*Pleistocene.*

There is a varying thickness of glacial deposits over the Lawrence county oil fields. The drift is from 100 to 115 feet thick in the northern part of Petty township. It thins very rapidly toward the south boundary of Petty and the northern limit of Bridgeport townships, which is the area of a conspicuous uplift of the LaSalle anticline. The drift over this structure is only 20 to 40 feet thick. South of the uplift, in the lower part of Bridgeport and over the Dennison and Lawrence fields, the drift is 50 to 80 feet thick. It thickens perceptibly westward toward the Illinois basin.

*Pennsylvanian.*

The Pennsylvanian rocks of Lawrence county include the shallow producing sand of lower Dennison township, probably of McLeansboro age; the Bridgeport sands in the upper part of the Pottsville; and the Buchanan sand in the basal portion of the Pottsville rocks.

*McLeansboro and Carbondale Formations.*

It is impossible to find the top of the Herrin coal or the dividing line between the McLeansboro and Carbondale formations in this county. No *Fusulina* fossils were found by Dr. Udden in the samples of wells 2, 5 and 10. The rocks of the McLeansboro and Carbondale formations are similar to those of Crawford county. They are represented mostly by shales, numerous sandstones, and a few widely separated beds of limestone and coal. Owing to the impossibility of tracing individual horizons through the section, no correlations were attempted. A casual study of the Bridgeport sands immediately beneath the Carbondale reveals a mild uplift and shows them to be influenced by the LaSalle anticline, though much less in extent than the lower producing formations. Owing to the impossibility of wide correlation, through confusion with lower Pottsville sand beds, only local studies could be made. The sharply defined structure of the Mississippian rocks, the unconformity between the Pennsylvanian and Mississippian, and the milder folding of the Pennsylvanian beds, suggests a secondary disturbance in this region. The Pennsylvanian rocks are thinner over the major uplift of the anticline which is probably due to a preexisting fold in the Mississippian and to erosion before becoming drift covered.

*Pottsville Formation*—The Pottsville rocks are mostly the massive sandstones of the basal part of the Pennsylvanian. The sandstone beds

are often separated by lenses of shale and contain no limestone. Through the section they are from 290 to 600 feet thick with an average of 395 feet. They are very much thinner over the uplift of the LaSalle anticline than along less disturbed areas. The Pottsville rocks rest uncomfortably upon the Mississippian and therefore show much irregularity in thickness. Additional irregularity of the uppermost sands suggest a slight unconformity between the Pottsville and Carbondale. The Pottsville is a prominent salt water horizon over most of Illinois and the main oil fields.

Records 8, 3 and 7 of Plate II and 2, 5 and 18 of Plate IIIA, in addition to that of well Pet. Sec. 36, S. W. No. 8 presented in the A-A cross-section of Lawrence county, page 116, were assembled and plotted in Plate IIIB to show the relations of the Robinson and Bridgeport sands to each other. The logs are arranged in order from south to north and are plotted with respect to the top of the Pottsville which is the key line. The coal-bearing rocks of the McLeansboro and Carbondale lie above the line. The upper Bridgeport sands lie immediately below the line in the first four and the upper Robinson sands in the last three logs. Both the Robinson and Bridgeport lenses are portions of conspicuous sandy zones, belonging to the Pottsville.

#### *Mississippian.*

The Mississippian rocks underlie the Pennsylvanian and contain the most important oil sands. The upper portion, known as the Chester group,<sup>1</sup> is limited by erosion to the Tribune formation. Below the Chester in succession are the Ste. Genevieve and St. Louis formations. The Chester beds include the "Gas," Kirkwood, and Tracey sands, and the Ste. Genevieve contains the rich McClosky sand.

*Tribune formation (upper portion of the Chester group)*—The Tribune formation is characterized by a succession of limestones interlain with numerous strata of sand, and red shales. The top of the Chester is considered to be the first limestone underlying the Pottsville sandstones or separated from them by a stratum of shale. The top limestone varies in its depth from the surface through the region, which is attributed to pre-Pennsylvanian erosion. The uplift in southern Petty and northern Bridgeport townships exposed much of the upper portions of the Chester to effective erosion. The average thickness of the Tribune formation in this region is 365 feet with a range of 295 to 440 feet. The Chester rocks in southwestern Illinois, in comparison, are about 700 feet thick. There are two extreme thicknesses of about 440 feet in logs 14 and 15. The wells yielding these logs are some distance down the western limb of the anticline where the formations thicken as they descend into the Illinois basin.

There are usually three strata of limestone interlain with shales which are penetrated before the first distinct sand is encountered in the Chester of Lawrence county. This sand is known as the "Gas" sand and is present over the northern half of the county. The average interval between the top limestone of the Chester and the "Gas" sand in logs 11, 12, 13, 15, and 19 is 125 feet. The next sand below the "Gas" sand is

<sup>1</sup> By some geologists the Ste. Genevieve is also included in the Chester group.



the Kirkwood, 192 feet beneath the top of the Chester. The Kirkwood sand is the most widespread of all producing horizons in Illinois. It usually lies about the middle of the Chester beds of the main fields. This sand is often divided into two or even three lenses.

The red shales are prominent horizon markers over most of central and southern Illinois and the oil fields. These shales are usually very soft and tend to discolor the water in drilling and thus indicate their presence. Most of the complete records in Lawrence county show at least three red shales in the Chester. Two of these usually occur over the Kirkwood and one beneath. The second red bed is often found immediately over the Kirkwood sand. The highest red shale of the Chester is about 50 feet below the top limestone in the northern portion of the field but is very irregular in the southern division.

The Tracey sand is about 317 feet and the McClosky of the Ste. Genevieve is 446 feet lower than the top of the Chester rocks. The lowest wells on the western flank of the anticline (Nos. 14 and 17) show larger intervals between the top limestone of the Chester and the lower beds than other wells over the crest of the fold.

The Tracey sand probably corresponds to one of the lower sand members of the Tribune in southwestern Illinois. The formation is quite uniform in character, a moderately fine-grained, yellowish-brown sandstone, rather heavily bedded in its lower portion, becoming more thinly bedded above. Its thickness varies from 80 feet or less to 150 feet or more.

*Ste. Genevieve*—The Ste. Genevieve limestone underlies the Chester rocks. Stuart Weller says of the Ste. Genevieve:<sup>1</sup> "The Ste. Genevieve limestone has usually not been distinguished from the St. Louis, and in its lithologic characters, especially in its variability, it closely resembles the St. Louis. In it, however, oolitic beds, which are absent in the St. Louis, appear, and it is, perhaps, less cherty than the St. Louis. The main distinction is a faunal one, there being a recurrence of the types of life which were abundant in the Salem, but absent from the St. Louis . . . . . Three members of the Ste. Genevieve limestone have been recognized by Ulrich,<sup>2</sup> the Fredonia member below, the Rosiclare sandstone member in the middle, and the O'Hara member, consisting of limestone and shale, at the top. It is nowhere possible to draw a sharp line between the St. Louis limestone and the base of the Fredonia . . . . . but the line between the Ste. Genevieve and the superjacent Cypress sandstone is a distinct stratigraphic break marked by an erosion unconformity.

Dr. Weller has further observed that the Ste. Genevieve of western Illinois is more oolitic than the average in its lower member and is conspicuously cross-bedded. Its maximum thickness in Monroe county is 100 feet with an average of about 80 feet. He thinks it is possible that the Illinois Ste. Genevieve may represent only the Fredonia limestone of Ulrich's interpretation.

The top of the Ste. Genevieve is used as a key line for the columnar section of Lawrence county, because of its persistence over the oil field. The records of wells and observations of oil men show this limestone

<sup>1</sup> *Ibid.* p. 26.

<sup>2</sup> Ulrich, E. O., and Smith, W. S. T. The lead, zinc and flourspar deposits of Western Kentucky. Prof. Paper U. S. Geol. Survey, No. 36, 1905, p. 38.

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<sup>1</sup> Ibid. p. 26.

<sup>2</sup> Ulrich, E. O.,  
Prof. Paper U. S. Geol. Surv.

to be particularly soft in comparison with the underlying St. Louis limestone. It merges into the St. Louis and the only possible distinction between them in this district is one of hardness. The Ste. Genevieve has an average thickness of 85 feet over the field, with a range of 56 to 120 feet.

Dr. Udden studied samples from wells 2, 5, and 10 of the columnar section and makes note of oolites at the top of the Ste. Genevieve. This strongly corroborates Mr. Weller's idea that the Ste. Genevieve of Illinois and particularly this portion of the State represents the basal Fredonia.

The Ste. Genevieve contains the McClosky sand, which has proven the most prolific oil horizon in Illinois. The wells have not only produced an exceptionally large initial flow but they have maintained a steady yield. They have been instrumental in upholding the Illinois production when other sections of the field were declining. The range of depth for the productive McClosky sand is 1,550 to 1,850 feet. The oil is found 20 to 50 feet in the limestone.

*St. Louis Formation*—The St. Louis limestone underlies the Ste. Genevieve and is characterized by extreme hardness, and a blue-gray color. It is often very cherty. This bed, with subjacent limestone members of the Mississippian are over 900 feet thick in this locality. The St. Louis was penetrated in wells 4, 7, 9, 11, 14, and 17. There were 680 feet of St. Louis and lower members recorded in No. 14 and 890 feet in No. 17. Well No. 17 of the columnar section is the deepest bore in Lawrence county. It is 2,936 feet deep. The next deepest is No. 14, 2,590 feet.

## CHAPTER II.

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### General Description of Features of the Main Fields.

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#### INTRODUCTION.

It is not the object of this report to outline new prospective oil areas but to present the geological facts observed in the developed fields, that will corroborate certain laws governing the genesis and accumulation of oil and gas. Certain facts are presented showing the relation of the quantities of oil, salt water, porosity of the sand, etc., to the structural features of the sand. The structure of individual sands is plotted in detail by use of contours and cross-sections; these show the vertical amplitude of the arches.

#### FIELD WORK.

##### TOPOGRAPHIC SURVEYS OF THE AREA.

The United States Geological Survey and the State Geological Survey in coöperation, have been making topographic surveys in and near the oil fields. The Hardinville quadrangle survey was completed in 1908. It covers an area 17 miles long by 13½ miles wide, south of the Illinois Central Railroad. The southern half of the Crawford county oil fields and the northern portion of the Lawrence county fields, namely that portion in Petty township, lie within the Hardinville area. The Sumner quadrangle adjoins the Hardinville area on the south and includes a small portion of this field in its northeast corner. The survey and topographic work was completed during the field season of 1911. The Vincennes quadrangle adjoins the Sumner area on the east and extends into Indiana. It includes a large portion of the Lawrence county fields in its northwest corner. The primary control has been made for the quadrangle but the secondary leveling and topographic work of the Illinois portion of the area are planned for the season of 1912. The levels established in the Hardinville and Sumner quadrangles serve as a basis of the work incidental to this report.

The coöperative work of both surveys has been further extended north of the Hardinville sheet, in the survey and study of over-flowed lands along North Fork of Embarrass river. This covers a narrow strip along the west side of the proposed *Moonshine* quadrangle, adjoining the Har-

dinville area in the north. The survey parallels the west side of the oil fields of Crawford county and will probably serve as a basis for future work in that area. The proposed Oilfield quadrangle is the second north of the Hardinville, and the first north of the *Moonshine* quadrangles. It is planned to survey this area soon. This will then serve as a basis for geological study of the shallow fields of Clark county.

The work of computing the altitudes of wells and tops of the various producing sands would not have been possible had not bench marks been scattered advantageously over the fields, particularly along highways. There were usually one-half dozen or more elevations painted on telegraph poles and fences along each section, which enabled the field men to run levels to the wells with a reasonable degree of accuracy and at the same time to check with other levels on adjoining roads or in other sections.

#### LEVELS IN THE OIL FIELDS.

The primary levels of the U. S. Geological Survey are the most important in the oil fields, as elsewhere, since they are based upon precise levels from a mean sea level and hence are of the highest order. They are usually carried in circuits and thus check upon themselves. The benches of these levels are usually the permanent iron posts planted, two in each township, and not more than six miles apart. The secondary or "flying" levels are carried from the permanent bench posts and are spread generally over local areas. The level figures are painted on fences, culverts, bridges, telephone posts, etc., in order to aid the topographer and geologist in contouring and detailed leveling.

The limit of error in primary leveling is about six inches in 100 miles circuit. There is no prescribed limit of error in secondary leveling although it usually is one foot, which can be easily adjusted between permanent bench marks.

The results of precise and primary leveling in the Hardinville and Sumner quadrangles are given as follows:<sup>1</sup>

#### *Hardinville quadrangle.*

The elevations in the following list are based upon bench mark B<sup>s</sup> of the Coast and Geodetic Survey at Olney, Ill., a square cut at the base of one of the columns of the north face of the court house. The elevation now accepted is 486.117 feet above mean sea level as determined by the 1907 adjustment.

The leveling was done in 1907 by Mr. Henry Bucher, levelman.

The work was done in coöperation with the State and the bench marks are stamped with the State name.

HICKORY POINT SCHOOL ALONG HIGHWAYS NORTH, TO T. 6 N., R. 14 W., NORTHEAST CORNER SECTION 10, THENCE EAST, TO T. 6 N., R. 12 W., NORTHEAST CORNER SECTION 7, THENCE NORTH, TO INDIANAPOLIS SOUTHERN RAILROAD AND EAST ALONG LATTER 2 MILES. TO ROBINSON.

	Feet.
T. 4 N., R. 14 W., 0.25 mile south of northwest corner of section 27,	
southeast corner of T road, on east side of road, 1.3 feet west of	
fence, 15 feet south of fence corner; iron post stamped "510	
ADJ" .....	510.502

<sup>1</sup> Herron, W. H. Report of the Cooperative Topographic Survey of Illinois, Bull. Ill. State Geol. Survey, No. 14, 1909, pp. 31-182.

	Feet
T. 4 N., R. 14 W., southwest corner of section 3, northeast corner of crossroads, east side of road, 1.1 feet west of fence, 11 feet north of fence corner; iron post stamped "508 ADJ" .....	509.121
T. 5 N., R. 14 W., northeast corner of section 34, at southwest corner of crossroads, on west side of road, 1.1 feet east of fence, 7 feet south of fence corner; iron post stamped "496 ADJ" .....	496.574
T. 5 N., R. 14 W., southwest corner of section 15, northeast corner of crossroads, on north side of road near old rail fence, about 14 feet east of north and south fence line, on east side of north and south road (New Light Christian Church (?) is at southeast corner of crossroads; iron post stamped "457 ADJ" .....	457.555
T. 5 N., R. 14 W., southeast corner of section 3, northwest corner of crossroads, west side of road, 6 feet east of fence and 4 feet north of fence corner; iron post stamped "462 ADJ" .....	463.263
T. 6 N., R. 14 W., northeast corner of section 27, southwest corner of crossroads, west side of road, 1.2 feet east of fence, 5.6 feet south of fence corner; iron post stamped "483 ADJ" .....	483.969
T. 6 N., R. 14 W., 0.25 mile east of southwest corner of section 2, T road (the branch to west is very dim), outside of road at T, 1.3 feet south of fence, 15 feet east of north and south fence at fence corner (north of center of T); iron post stamped "478 ADJ" .....	478.367
T. 6 N., R. 13 W., northeast corner of section 7, at southwest corner of T road, on west side of road, 1.2 feet east of fence, 7.5 feet south of fence corner; iron post stamped "483 ADJ" .....	483.298
T. 6 N., R. 13 W., southwest corner of section 2, (crossroads) 0.75 mile south of Stoy, on small bank by pipe line, 1 foot east of fence, 76 feet north of east and west fence line on north side of east and west road; iron post stamped "475 ADJ" .....	476.261
T. 6 N., R. 12 W., northeast corner of section 7, T road, on south side of road opposite the Wilson Schoolhouse, 0.7 foot north of fence, 12 feet east of fence corner, on edge of lane to south; iron post stamped "581 ADJ" .....	531.481

FROM POINT 0.75 MILE SOUTH OF STOY SOUTH ALONG HIGHWAYS TO T. 4 N., R. 13 W. NEAR SOUTHEAST CORNER OF SECTION 29.

	Feet
T. 6 N., R. 13 W., northwest corner of section 23, T road, on bank on south side of road at T, 1.5 feet north of fence, 34.5 feet east of north and south section line fence; iron post stamped "484 ADJ" .....	485.269
Hardinville, section 34, T. 6 N., R. 13 W., on east side of main north and south road just north of Christian Church, 500 feet south of crossroads, 4.2 feet north of fence line between McCarty (south side) and Newman (north side), 6.8 feet west of an old fence line north in correct position; iron post stamped "510 ADJ" .....	510.903
T. 5 N., R. 13 W., 0.25 mile north of southwest corner of section 4, southeast corner of T road, at T, on south side of road, 0.9 feet north of fence, 39 feet east of north and south fence line, on east side of north and south road; iron post stamped "463 ADJ" .....	463.826
Chauncey, southwest corner of section 28, T. 5 N., R. 13 W., at northeast corner of crossroads, on east side of road, 1.2 feet west of fence, 6.6 feet north of fence corner; iron post stamped "488 ADJ" .....	488.708
T. 4 N., R. 13 W., 0.25 mile north of southeast corner of section 8, northwest corner of T road, north side of road between 2 walnut trees, 1.2 feet south of fence, 28 feet west of north and south fence line on west side of north and south road; iron post stamped "492 ADJ" .....	492.990

FROM T. 6 N., R. 12 W., NORTHEAST CORNER OF SECTION 29, ALONG HIGHWAYS SOUTH, TO FAIRVIEW CHURCH.

	Feet.
T. 6 N., R. 12 W., quarter corner east side of section 29, T road at southwest corner, on south side of road, 1.1 feet north of fence 7 feet west of 2-foot oak tree at fence corner; iron post stamped "512 ADJ" .....	512.750
T. 5 N., R. 12 W., northwest corner of section 9, at southeast corner of crossroads, on east side of road, 0.8 foot west of fence, 5 feet south of fence corner; iron post stamped "523 ADJ" .....	523.318
T. 5 N., R. 12 W., 0.25 mile east of northwest corner of section 28, southeast corner of crossroads, 0.8 foot west of fence, 6 feet south of fence corner; iron post stamped "442 ADJ" .....	442.767
Westport, section 32, T. 5 N., R. 12 W., iron truss bridge over Embarrass river at southwest corner, in highest part of masonry support, 1.1 feet from east edge, 0.3 feet from south edge; aluminum tablet stamped "437 ADJ" .....	437.339
T. 4 N., R. 12 W., northeast corner of section 18, southwest corner of crossroads, south side of road, 1.3 feet north of fence, 22 feet west of north and south fence line on west side of north and south road; iron post stamped "436 ADJ" .....	436.534
T. 4 N., R. 12 W., northwest corner of section 29, at crossroads, on south side of road at T, 2.1 feet north of fence line, 23 feet east of north and south fence line at fence corner; iron post stamped "455 ADJ" .....	455.678

*Sumner quadrangle.*

The leveling was done mostly by H. G. Lowe and in part by H. Bucher in 1907.

FROM POINT 4 MILES EAST OF OLNEY EAST ALONG BALTIMORE AND OHIO SOUTHWESTERN RAILROAD, TO CLAREMONT, THENCE ALONG HIGHWAYS NORTH, TO HICKORY POINT SCHOOL.

*(Mean of Direct and Reverse Leveling.)*

	Feet.
Claremont station, 0.36 mile west of, south end of small artificial lake, in top of east wing of masonry dam, 0.9 foot from west edge and 1.8 feet from north edge, in northwest corner; aluminum tablet stamped "498 ADJ" .....	498.826
Claremont, at station crossing; top of south rail .....	509.8

FROM CROSSROADS 0.93 MILE NORTH OF CLAREMONT EAST ALONG HIGHWAY TO T ROAD 0.25 MILE EAST OF NORTHEAST CORNER SECTION 5, T. 3 N., R. 13 W., THENCE NORTH 1 MILE.

	Feet.
T. 4 N., R. 14 W., southwest corner of section 36, at northeast corner of crossroads, on east side of road, 0.7 foot west of fence, 22 feet north of fence corner; iron post stamped "509 ADJ" .....	510.263
T. 3 N., R. 13 W., 0.25 mile east of northwest corner of section 4, at T road, 0.7 foot north of fence, 24.5 feet east of telegraph pole, about 11 feet east of center line of north and south road; iron post stamped "483 ADJ" .....	484.085
T. 4 N., R. 13 W., 0.25 mile east of northwest corner of section 33, at T road, on west side of road, 2.2 feet east of fence, in concrete post flush with ground; aluminum tablet stamped "Prim. Trav. Sta. No. 10, 489 ADJ" .....	490.408



FROM T. 3 N., R. 13 W., SEC. 5, 0.25 MILE EAST OF NORTHEAST CORNER, EAST TO T. 4 N., R. 12 W., NORTHEAST CORNER SECTION 32, THENCE NORTH, TO FAIRVIEW CHURCH.

	Feet.
T. 4 N., R. 13 W., southwest corner of section 36, opposite U. B. Union Chapel, at northeast corner of crossroads, on east side of road, 1.1 feet west of fence, 62 feet north of fence; iron post stamped "570 ADJ" .....	571.168
T. 3 N., R. 12 W., northwest corner of section 4, at crossroads, State road east to west, on south side of road, on bank a little east of center of road to north, 0.9 foot north of fence, 18.5 feet east of telegraph pole; iron post stamped "457 ADJ" .....	457.461

FROM POINT 2 MILES NORTH OF BRIDGEPORT SOUTH, TO GRANT SCHOOL, THENCE WEST 5.6 MILES, THENCE NORTH, TO SUMNER.

	Feet.
Bridgeport, 100 feet north of railroad, on front face of southeast corner of yellow brick building owned by F. W. Cox, about 3 feet above sidewalk; aluminum tablet stamped "449 1908" .....	448.591
T. 3 N., R. 12 W., corner of sections 20, 21, 28 and 29, at northwest corner of crossroads; iron post stamped "489 1908" .....	489.774
Grant School, corner of sections 4, 5, 8 and 9, T. 2 N., R. 12 W., at northwest corner of crossroads, in southeast corner of school yard, iron post stamped "446 1908" .....	446.892
T. 2 N., R. 13 W., quarter corner between sections 4 and 9, at southwest corner of crossroads, 3 feet west of corner of John White's yard; iron post stamped "476 1908" .....	477.274
Sumner, on Main street, 250 feet south of railroad, at northeast corner of street crossing in brick building owned by Mart Wagner, in south face on foot from southwest corner and 3 feet above ground; aluminum tablet stamped "461 ILLINOIS 1908" .....	462.148
Sumner, railroad crossing on Main street; top of rail .....	460.5

FROM POINT 5.6 MILES WEST OF GRANT SCHOOL WEST, TO BROWNSVILLE, THENCE NORTH, TO CLAREMONT.

	Feet.
T. 2 N., Rs. 13 and 14 W., corner of sections 1, 6, 7 and 12, Lawrence-Richland county line, at northwest corner of crossroads, in root of tree; spike .....	537.90
Preston School, corner sections 3, 4, 9 and 10, T. 2 N., R. 14 W., in front of T road east, 600 feet south of T road west, in southeast corner of school yard; iron post stamped "456 1908" .....	456.244
Black Oak School, corner of sections 27, 28, 33 and 34, T. 3 N., R. 14 W., at northwest corner of crossroads, in southeast corner of school yard, in tree root; spike .....	497.20
T. 3 N., R. 13 W., at corner of sections 21, 22, 27 and 28, at southwest corner of crossroads, by picket fence; iron post stamped "506 1908" .....	505.920
Claremont, in front of station; top of rail .....	509.7

GRANT SCHOOL SOUTH, TO NEAR PATTON.

	Feet.
T. 2 N., R. 12 W., quarter corner between sections 20 and 21, at northeast corner of crossroads, in southwest corner of school yard; iron post stamped "445 1908" .....	445.641
T. 1 N., R. 12 W., corner sections 8, 9, 16 and 17, at northwest corner of crossroads, by picket fence; iron post stamped "462 1908" .....	462.325

FROM POINT 5.6 MILES WEST OF GRANT SCHOOL SOUTH AND EAST, VIA FRIENDSVILLE, TO NEAR PATTON.

	Feet.
T. 2 N., R. 13 W., quarter corner between sections 21 and 28, in front of T road west of schoolhouse, 4 feet south of corner fence post; iron post stamped "460 1908" .....	460.636
Lancaster, 400 feet east by 400 feet south of middle of section 4, T. 1 N., R. 13 W., in west face of Lutheran church directly under window south of entrance, about 2.5 feet above ground; aluminum table stamped "494 ILLINOIS 1908" .....	494.584
Stoeltz Schoolhouse, quarter corner between sections 20 and 21, T. 1 N., R. 13 W., at southwest corner of crossroads, in northeast corner of school yard; iron post stamped "459 1908" .....	459.431
Friendsville, quarter corner between sections 23 and 24, T. 1 N., R. 13 W., in east side of brick house of Dr. C. S. Couch, near southeast corner, about 3 feet above ground; bronze tablet stamped "482 VIN" .....	481.722

FROM STOELTZ SCHOOL WEST, TO PINHOOK, THENCE NORTH, TO BROWNSVILLE.

	Feet.
T. 1 N., Rs. 13 and 14 W., 0.25 mile north of quarter corner between sections 19 and 24, in front of and about 20 feet south of center line of T road east; iron post stamped "409 1908" .....	409.460
Pinhook, quarter corner between sections 21 and 22, T. 1 N., R. 14 W., at northeast corner of T road north; iron post stamped "435 1908" .....	435.611
T. 1 and 2 N., R. 14 W., about 0.1 mile east of quarter corner between sections 4 and 33, at northwest corner of crossroads, opposite small white house; iron post stamped "458 1908" .....	458.416
Red Head Schoolhouse, quarter corner between sections 16 and 21, T. 2 N., R. 14 W., at southwest corner of crossroads, in northeast corner of school yard; iron post stamped "462 1908" .....	462.524
Preston School, corner of sections 3, 4, 9 and 10, T. 2 N., R. 14 W., in front of T road east, 600 feet south of T road west, in southeast corner of school yard; iron post stamped "456 1908" .....	456.244

#### GEOGRAPHIC POSITIONS OF QUADRANGLES.

The following are the geographical positions of points in the three quadrangles covered by this report:

##### *Hardinville quadrangle.*

*Crawford, Jasper, Lawrence and Richland Counties*—The following geographic positions were determined by primary traverse run in July, 1907, by Mr. J. R. Ellis, assistant topographer. The line starts from Claremont triangulation station and follows highways along south and east edges of quadrangle to Robinson, thence westerly along the Illinois Central Railroad to Oblong triangulation station, thence westerly along railroad to Willow Hill, thence southerly along railroad and highways on west edge of quadrangle to Claremont triangulation station:

*Geographic Positions Along Highways Near South Border of Quadrangle.*

Stations.	Latitude.	Longitude.
Claremont triangulation station of the U. S. Lake Survey and U. S. C. & G. S., in section 20, T. 4 N., R. 14 W., German township, 3 miles northwesterly from town of Claremont a station on Ohio and Mississippi Railroad, on land of Brinkley heirs. Station mark: Two stone posts, one above the other in the usual manner. Reference marks. One north 67° 33' west, distant 23.1 meters. One north 0. 39' west, distant 7.8 meters. One north 71° 45' east, distant 24.6 meters from station mark. Northwest corner of section 29 bears north 60° 03' west, distant 847 meters from station mark.....	38 45 28.5	87 59 40.8
T. 4 N., R. 14 W., corner sections 28, 29, 32 and 33, 20 feet south to corner fence post.....	38 44 49.1	87 59 03.2
T. 4 N., R. 14 W., corner sections 27, 28, 33 and 34, T road west at school house, 10 feet east to rail fence.....	38 44 48.8	87 57 55.4
T. 4 N., R. 14 W., quarter corner between sections 26 and 27, crossroads, 15 feet north to center of bridge.....	38 45 15.1	87 56° 47.2
T. 4 N., R. 14 E., quarter corner between sections 25 and 26, center of crossroads.....	38 45 14.9	87 55 39.3
T. 4 N., R. 13 and 14 W., quarter corner between sections 25 and 30, center of crossroads, Richland and Lawrence county line.....	38 45 14.7	87 54 31.4
Sumner, 2.25 miles north by 0.25 mile west of; on west side of road at T road east, 2 feet west to fence, 25 feet east to center of T road east, in top of concrete block 8 x 8 x 20' in ground, aluminum tablet stamped "Prim. Trav. Sta. No. 10, 1907, ILLINOIS".....	38 44 47.8	87 51 58.4
T. 4 N., R. 13 W., corner sections 27, 28, 33 and 34, 25 feet south to corner fence post.....	38 44 47.7	87 51 06.9
T. 4 N., R. 13 W., east corner sections 27 and 34, stone, T road west at church.....	38 44 47.5	87 49 58.9
T. 4 N., R. 13 W., corner sections 25, 26, 35 and 36, center of T road south.....	38 44 44.0	87 48 55.7
T. 4 N., R. 12 and 13 W., corner sections 25, 30, 31 and 36, crossroads, 10 feet west to center of small bridge.....	38 44 43.8	87 47 48.1
T. 4 N., R. 12 W., stone corner sections 29, 30, 31 and 32, T road south Westport, 5.75 miles due south of; on east side of T road west at Fairview church, in top of concrete block 8 x 8 x 20' inches, aluminum tablet stamped "Prim. Trav. Sta. No. 11, 1907, ILLINOIS".....	38 44 46.0	87 45 35.3
T. 4 N., R. 12 W., corner sections 28, 29, 32 and 33, center of T road west.....	38 44 45.9	87 45 35.5

*Geographic Positions Along Highways Near East Border of Quadrangle.*

Stations.	Latitude.	Longitude.
T. 4 N., R. 12 W., corner sections 20, 21, 28 and 29, T road west.....	38 45 39.2	87 45 35.4
T. 4 N., R. 12 W., stone corner sections 16, 17, 20 and 21, fence east and west.....	38 46 32.2	87 45 35.4
Center of T road east.....	38 46 44.2	87 46 38.5
T. 4 N., R. 12 W., corner sections 7, 8, 17 and 18, center of crossroads..	38 47 23.4	87 46 41.8
Westport, 0.75 mile east of; intersection at T road west.....	38 49 40.2	87 44 42.8
T. 5 N., R. 12 W., corner sections 21, 22, 27 and 28, center of county line road at north and south fence.....	38 51 00.0	87 44 26.0
Crawford, 1 mile north of; Lawrence county line.....	38 51 54.8	87 43 52.1
T road east, southeast corner, 7 feet north and 4 feet west to maple tree, 35 feet north and 20 feet west to center of T road east, in concrete block, aluminum tablet stamped "Prim. Trav. Sta. No. 12, 1907, ILLINOIS".....	38 52 57.9	87 43 52.7
Quarter corner between sections....., center of crossroads.....	38 53 40.5	87 43 53.1
T. 5 and 6 N., R. 12 W., corner sections 3, 4, 33 and 34, stone, 1,340 feet east of; T road east on T. S. line.....	38 54 41.6	87 44 10.4
T. 6 N., R. 12 W., corner sections 27, 28, 33 and 34, T road west, 25 feet due east to corner fence post.....	38 55 34.0	87 44 27.5
Road west at Indian boundary.....	38 56 19.8	87 44 51.8
New Hebron, T road just northeast of; 10 feet northeast to large black oak tree.....	38 57 31.1	87 44 35.8
Lane east at turn of road.....	38 58 19.1	87 44 30.2
T. 6 N., R. 12 W., corner sections 3, 4, 9 and 10, T road west at school house, 12 feet east to corner yard fence.....	38 58 59.3	87 44 19.2
T. 6 N., R. 12 W., north corner sections 3 and 4, center of T road south, just east of entrance to Robinson Fair Grounds.....	38 59 54.5	87 44 19.8
Robinson court house, in stone post at south entrance to grounds, aluminum tablet stamped "Prim. Trav. Sta. No. 13, 1907, ILLINOIS".....	39 00 18.2	87 44 21.6

*Sumner quadrangle.*

*Edwards, Lawrence, Richland and Wabash Counties*—The following geographic positions on U. S. Standard datum were determined by primary traverse in 1908 by J. R. Ellis, assistant topographer. The line starts from Claremont triangulation station of the U. S. Lake Survey and Coast and Geodetic Survey and follows south along public highways to Parkersburg triangulation station, thence to southwest corner of Sumner quadrangle, thence east to point near Patton and north along border of quadrangle to primary traverse station No. 11, 1907, Illinois:

*Geographic Positions Along Highways.*

Station.	Latitude.	Longitude.
St. James church, center of cross roads at.....	38 44 49.2	87 59 54.4
T. 1 N., R. 14 W., $\frac{1}{2}$ corner between secs. 20 and 21, center of cross roads	38 30 15.3	87 59 05.2
Mills Prairie school house No. 13, at northeast corner of T road north, 0.25 mile east of, 25 feet south and 25 feet west to $\frac{1}{2}$ corner between secs. 21 and 22, T. 1 N., R. 14 W., elevation 435; iron post stamped "Prim. Trav. Sta. No. 13, 1908, Illinois".....	38 30 15.2	87 57 57.8
Edwards-Wabash county line, center of bridge over Bonpas creek...	38 30 18.4	87 56 53.2
T. 1 N., R. 14 W., $\frac{1}{2}$ corner between secs. 23 and 24, center of T road south.....	38 30 14.6	87 55 48.1
T. 1 N., R. 13 and 14 west, $\frac{1}{2}$ corner between secs. 19 and 24, center of T road west.....	38 30 14.5	87 54 41.2
Barney Prairie church, stone at T road west at.....	38 30 10.0	87 47 55.0
Harmony school house, in southwest corner of yard at; 35 feet south and 30 feet west to $\frac{1}{2}$ corner between secs. 20 and 31, T. 2 N., R. 12 W., cross roads; elevation 445; iron post stamped "Prim. Trav. Sta. No. 17, 1908, Illinois".....	38 35 26.0	87 45 34.1
T. 2 N., R. 12 W., $\frac{1}{2}$ corner between secs. 20 and 21, center of cross roads	38 35 25.7	87 45 34.5
T. 2 N., R. 12 W., corner secs. 16, 17, 20 and 21.....	38 35 52.0	87 45 34.0
T. 2 N., R. 12 W., corner secs. 8, 9, 16 and 17.....	38 36 44.6	87 45 33.4
Grant school house, in southeast corner of yard at; elevation 446; iron post stamped "Prim. Trav. Sta. No. 18, 1908, Illinois".....	38 37 38.2	87 45 33.4
T. 2 N., R. 12 W., corner secs. 4, 5, 8 and 9, center of cross roads.....	38 37 37.5	87 45 33.1
T. 2 N., R. 12 W., corner secs. 4 and 5 (north corner), T road south....	38 38 34.6	87 45 33.0
T. 3 N., R. 12 W., corner secs. 32 and 33 (south corner), T road north....	38 38 34.6	87 45 34.6
Bridgeport, at northeast corner of cross roads about 3 miles south of; iron post stamped "Prim. Trav. Sta. No. 19, 1908, Illinois".....	38 39 28.0	87 45 33.8
T. 3 N., R. 12 W., corner secs. 28, 29, 32 and 33, cross roads.....	38 39 27.7	87 45 34.0
Bridgeport, at northwest corner of cross roads 2 miles south of, eleva- tion 489; iron post stamped "Prim. Trav. Sta. No. 20, 1908, Illinois".....	38 40 20.7	87 45 34.3
T. 3 N., R. 12 W., corner secs. 20, 21, 28 and 29, center of cross roads...	38 40 20.4	87 45 33.9
T. 3 N., R. 12 W., corner secs. 16, 17, 20 and 21, center of T road west....	38 41 13.2	87 45 33.5
T. 3 N., R. 12 W., corner secs. 8, 9, 16 and 17.....	38 42 06.2	87 45 33.3
Bridgeport, Main street crossing Baltimore & Ohio railroad.....	38 42 19.2	87 45 35.3
T. 3 N., R. 12 W., corner secs. 4, 5, 8 and 9, center of cross roads.....	38 42 59.3	87 45 33.1
T. 3 N., R. 12 W., corner secs. 4 and 5 (north corner), 20 feet north to T road south.....	38 43 52.6	87 45 33.0
Westport 5.75 miles due south of; on east side of T road west at Fair- view church, in top of concrete block 8 by 8 by 20 inches; aluminum tablet stamped "Prim. Trav. Sta. No. 11, 1907, Illinois".....	38 44 46.0	87 45 35.3

Magnetic Declination of east border of quadrangle 3° 50' east.  
Magnetic Declination of south border of quadrangle 3° 47' east.  
Magnetic Declination of west border of quadrangle 3° 36' east.

*Vincennes quadrangle.**Geographic Positions Along Highways Near West Border of Quadrangle.*

Station.	Latitude.	Longitude.
Patton, at southeast corner of T road west, 1.25 miles north and 0.5 miles east of; 15 feet north and 20 feet west to center of T road; iron post stamped "Prim. Trav. Sta. No. 16, 1908, Illinois".....	38 29 54.5	87 44 29.8
T. 1 N., R. 12 W., corner secs. 15, 16, 21 and 22.....	38 30 34.3	87 44 30.7
T. 1 N., R. 12 W., corner secs. 9, 10, 15 and 16, center of cross roads.....	38 31 27.3	87 44 31.8

*Geographic Positions Along Highways Near South Border of Quadrangle—*  
Concluded.

Stations.	Latitude.	Longitude.
T. 1 N., R. 12 W., corner secs. 3, 4, 9 and 10, center of T road west, at school house.....	38 32 20.0	87 44 32.6
T. 1 N., R. 12 W., stone corner secs. 3 and 4 (north corner).....	38 33 14.9	87 44 33.4
T. 2 N., R. 12 W., stone corner secs. 33 and 34 (south corner).....	38 33 14.9	87 44 29.3
T. 2 N., R. 12 W., corner secs. 27, 28, 33 and 34, Lawrence-Wabash county line.....	38 34 06.8	87 44 28.5
Harmony school house, 1 mile east of, center of cross roads.....	38 35 25.4	87 44 27.0

Magnetic Declination west border of quadrangle 3° 50' east.

## ELEVATIONS OF OIL WELLS.

The elevation of most of the oil wells in the area studied were secured by means of a Locke or hand-level. The secondary bench marks served as bases for the work, and levels were run from them to the wells. The limit of error in this work was about two feet, although it was probably less because of the check with previously determined elevations and other bench marks. Elevations of about 5,200 wells were determined in the two counties. The leveling in the Hardinville quadrangle was done wholly by use of the Locke level while the elevations of the wells in the Sumner quadrangle were determined by use of a Y level in charge of W. E. Deuchler. As no leveling had been done in the Vincennes quadrangle it became necessary to run secondary levels through the active oil fields from the Sumner quadrangle. About 24 square miles of secondary levels were made in this fashion.

## COLLECTION OF WELL RECORDS.

Records were collected from about 95 per cent of the wells in the area although about 94 per cent of these were skeleton logs or simply notations of the depth and thickness of the producing sands. The scarcity of detailed logs is probably due to rapidity of early development, and the lack of appreciation of their importance. Many detailed records are indispensable in a geological study of any area, especially such as Illinois, which is so covered with drift as to conceal the sequence of formations and practically all evidence of folding. Too little attention is paid to the formations above the oil producing sands, which may often prove excellent key horizons, or widespread formations, that may enable a geologist to interpret future records more readily. All operators and drillers are urged to note the positions of all formations in their wells, as a matter of possible value to themselves in drilling in other areas in the State, and as an assistance to the survey whose duty it is to work out the geological problems connected with the oil industry of the State.

The vast number of records collected for study necessitated a compact and efficient method of readily locating desired logs. A loose-leaf system was established for collecting records in the field and later filing these permanently in the office in suitable binders. The records are arranged by township binders and in each of these, by section, farm name, operator and well number.

## GEOLOGICAL ASPECTS.

### GENERAL STATEMENT.

It is particularly valuable if an area whose oil resources are under investigation has a persistent key horizon at or near the surface, from which may be determined the interval to the producing sands and the geologic structure. Coals, such as the Pittsburg coal of the Appalachian region or the Herrin (No. 6) coal of western Illinois, serve as excellent key horizons. Limestones of peculiar lithological characteristics are also good horizons for these purposes. Unfortunately, the formations along the eastern boundary of Illinois, as over most of State, are concealed with drift and have been studied but little. Moreover, there are no coal mines in this section of the State and the wells of the main fields have offered little or no help toward recognizing persistent horizons close to the surface. Under these conditions it became necessary to resort to altitudes of the sand with respect to sea level in the determination of structure and sand relations.

### LOCAL NAMES OF SANDS.

The productive horizons in the several pools of Lawrence county were given the names of the land owners upon whose farms oil was first found in these particular horizons, except for the lenticular Bridgeport sands, first discovered in the county. These were named after the town of Bridgeport. The producing sands of Crawford county are also lenticular and are called the Robinson sands, after the city of Robinson. The operators were able to follow and distinguish the sands in their development from the shallow to the deeper fields and in computing their records, designated the names of the sands with fair accuracy. Where the names were missing, the sands were later found to fit their particular horizons on the structure maps and cross-sections.

### CORRELATION OF SANDS.

Strip plotting was resorted to in correlating sands. The record of the wells were plotted to uniform scale, and with the same symbols, on long narrow strips of cross-section paper. The strips were compared, and by shifting one at the side of the others, the relations of the logs to one another were found. The interpretation and correlation of logs, especially those of wells in the Pennsylvanian beds, requires much work and the results are not always satisfactory.

### ALTITUDES OF SANDS.

The method used to ascertain the altitudes of the tops of the producing sands was to subtract the elevation of the mouth of the well from the depth to the sand. The altitudes were usually below sea level and therefore were negative. In drawing a contour map under these conditions the high numbers would signify low places and reversely, low numbers high places. In order to avoid confusion in studying contouring an assumed plane 1,500 feet below sea level was chosen, and from this the negative altitudes were subtracted. The resulting high

figures then correspond to high places in the structure and the low numbers to low places.

#### TABLES OF WELL DATA.

The desire to present the vast amount of data from wells in the studied area resulted in the compact tables presented on page 185. In order to show reference from well to table it became necessary to adopt a system of well numbers that would not crowd the map. Each section is, therefore, divided into quarters which serve as units for numbering. The total number of wells for each quarter-section is thus kept below 100. References to wells in the text are abbreviated as follows, Pet. sec. 30, SE., No. 60, which signifies well No. 60 in the southeast quarter of section 30, Petty township, Lawrence county, and the record of which may be found in the tables of well data. Other abbreviations are as follows: Ob., Oblong township; Rob., Robinson township; H. C., Honey creek township; Mar., Martin township, all of Crawford county; Bport., Bridgeport township; Law., Lawrence township, and Den., Dennison township, all of Lawrence county.

#### COUNTOUR MAPS.

The structure of the producing sands is graphically presented by use of contours or lines defining the elevation, horizontal form, and slope of the top of the sand. The elevation of the contour is designated by the large number which is set in, or at the end of, the line. The slope, or dip and rise of the sand, is expressed through numbers on consecutive contour lines.

The contour maps were drawn on a key or base map which shows the position and reference numbers of all the wells drilled in the area and also additional culture such as towns, streams, roads, pumping stations, etc. All wells that furnished data for a given sand were plotted in position on a skeleton map on which the culture was omitted. The positive altitudes of the sands, with respect to the assumed datum plane 1,500 feet below mean sea level, were contoured between wells. These constitute the structure maps.

#### CROSS-SECTIONS.

The structure of the several producing sands is further shown by the use of cross-sections. They portray graphically the rise and the fall of the oil sands along chosen lines and are intended to make clearer the mental picture of the contour idea to those who are not familiar with contouring. At the same time the sections show the relation of the structure of one sand to that of another. The only cross-sections presented in this report are those of Lawrence county.

### CHAPTER III.

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#### Detailed Geology of the Crawford County Fields.

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#### GENERAL FEATURES OF THE OIL FIELD.

The shape and extent of the Crawford county pools within the Hardinville quadrangle, are shown on Plate IV, the base map of the area. The map shows the development up to January 1, 1909. The Robinson pool is about 7 miles wide between Oblong and Robinson, but it narrows to about  $3\frac{1}{2}$  miles at the southern limit of the county. The western boundary of the oil field trends northwest and southeast and is distinctly abrupt. Its eastern edge is very irregular and the oil zone appears to have pinched out here and there as shown by light producing wells and many dry holes.

A barren area about 3 miles wide separates the Robinson and Honey creek pools in Crawford county and continues south and southwest in a Y shape, separating the Lawrence county pools from those of Crawford county. Detailed data are not at hand to account definitely for the break. It is probably due to a series of undulations transverse to the major axis of the dominant anticline, since the Honey creek sands lie lower structurally than those of the Robinson pool and the Lawrence county sands, higher than those in Crawford county.

Other conspicuous gaps in the Robinson pool are the Hardinville gas dome and an irregular break from east to west directly south of the Illinois Central Railroad. The area just east of Hardinville, namely section 35, Martin township, is barren of oil, except in the northwest corner and along the south line, but shows evidence of fair gas pressures. The producing sands indicate a structural dome. The narrow barren area through sections 2, 3, 4, 8, 9, 10 and 16, T. 6. N., R. 13 W., is due to noticeable thinning of the sand which, elsewhere, varies between 2 and 15 feet in thickness. In some instances the sands are entirely absent. This condition is probably accompanied by a lack of sufficient porosity in the sands to allow oil diffusion; at any rate, there is more regularity in the position, thickness, and production of the sands on both sides of the break.

The Crawford county pools are distinctive for possessing one general oil producing zone, known as the Robinson sand. This sand is so broken



and lenticular that it offers little opportunity for structural study. In fact, the sand shows innumerable streaks, tongues, and detached portions and so prohibits correlation and contouring. In some portions of the field, however, the sand is regular in its distribution. It is split into two or three persistent lenses that show average depths of about 850,900, and 940 feet with an average interval between the tops of the sands of about 50 feet. The thickness of the sand lenses varies between 2 and 50 feet with an average of about 25 feet. The average thickness of the lenses is difficult to estimate because a great many wells merely penetrate the pay sand and consequently its total thickness remains unknown. Beyond the confines of these areas the sand lenses merge into one another and become even consolidated in the wells listed below:

*List of Wells in Which the Robinson Sand is Exceptionally Thick.*

Township.	Section.	Quarter-section.	Well number.
Martin.....	1.....	NW.	10
	1.....	SW.	6
	21.....	SW.	13, 18
	22.....	NE.	31
	23.....	NE.	1
	26.....	SE.	8, 13
	27.....	SW.	30
	27.....	SE.	18
	28.....	NE.	6
	34.....	NW.	1, 2, 5, 33
	35.....	NW.	2, 5
Honey Creek.....	6.....	SW.	7
	10.....	SW.	3
	29.....	SE.	1
Oblong.....	2.....	SE.	20
	5.....	NW.	6
	6.....	NE.	2
	7.....	NE.	31
	15.....	NW.	12
	16.....	SW.	

The maximum thickness of the consolidated sand lenses is 122 feet. In other sections of the field either one, two, or even all the lenses are absent. Those wells in which there is no sand, are as follows:

*List of Wells From Which the Robinson Sand is Absent.*

Township.	Section.	Quarter-section.	Well number.
Oblong.....	3.....	SE.	1
	5.....	NE.	27
	8.....	NE.	12
	9.....	NW.	9
	18.....	NW.	1, 2
	18.....	SW.	1
	18.....	SE.	2
	31.....	SE.	5
Honey Creek.....	6.....	SE.	1
	22.....	NE.	1
	31.....	SE.	9

The wells in which one or two lenses are absent are too numerous to mention.

There are additional lenses of sand both above and below the zone which includes the three persistent lenses. One above is known as the

"gas" or "stray" sand. It is usually from 6 to 20 feet thick and about 20 to 50 feet above the topmost lens of the Robinson sand. This sand produces small quantities of gas in portions of the field, particularly in the northern part of the Hardinville quadrangle. The sand lens lower than the oil zone may belong to the Robinson sand as a fourth lens, so closely is it related to the upper lenses. It is not productive. There are other minor streaks of sand even in the producing zone that add further confusion to correlation.

There is a shallow sand that is productive of oil in section 27, Martin township that may be comparable to one of the shallow Clark county sands. Its extent is very limited.

### DETAILED STRUCTURE OF THE DISTRICT.

Owing to the irregular deposition of sands and shales it was found impossible to correlate and contour any sand beds definitely except the top lens of the Robinson sand which is somewhat persistent over the area. Even this work loses much of its scientific value because parts of it are suppositional through the overlapping and wedging out of this sand bed, as well as those above and below it.

The altitudes of the top lens are assembled and contoured in Plate 5. The general structure of the Robinson pool reveals a broad and gentle arch which is divided into two parts by a transverse basin. The northern part shows the arch to be about 6 miles wide with its crest 95 feet above the lowest explored portions of its limbs. This portion of the arch is subdivided into two crests of the same height. One lies in section 5 and the other in section 10, Oblong township. The southern portion of the arch is about four miles wide and 110 feet high. The crest of this portion lies in section 35, Martin township. The two arches merge into a depressed or synclinal area through sections 13, 14, 15 and 21, T. 6 N., R. 13 W., the bottom of which is 65 feet lower than the crest of the northern arch and 105 feet lower than that of the southern arch. The 1,100-foot contour follows the limits of the pool in a general way and seems to include most of the productive zone.

The contours on the portion of the Honey creek pool shown on the map indicate a lower productive level than the Robinson pool. The heart of the production lies along the 1,080-foot level which is equivalent to the lowest productive levels on the arch of the Robinson pool. This pool is a continuation of the Robinson pool and the difference in oil levels seems to indicate an intervening depression.

The western boundary of the productive field in Crawford county is sharply defined and is marked by an abundance of salt water. It is also worthy of note that there are at least seven wells along this line that show an absence of sands. The western limb of the arch is much the steeper, which fact corroborates previous observations of the LaSalle anticline in its exposure near LaSalle, Ill.<sup>1</sup> It would then follow from the general knowledge of the Illinois basin<sup>2</sup> that the Robinson sands assume a much steeper dip a short distance west of the oil field. The tendency of the sands to remain locally flattened on the east side

<sup>1</sup> Weller, Stuart, The geological map of Illinois: Bull. Ill. State Geol. Survey, No. 6, 1907, p. 12.

<sup>2</sup> Oil resources of Illinois with special reference to the area outside the Southeastern fields: Bull. Ill. State Geol. Survey, No. 16, 1910, pp. 48-51.

of the arch is in keeping with the slope of the arch at LaSalle. The Duncanville and Flat Rock pools lie at about the same general levels as the Honey creek pool and add further evidence to the mild nature of the eastern limb of the anticline.

#### RELATIONS OF STRUCTURE TO OIL AND GAS.

The Robinson sands have proved rich in their yield of oil. Of the 2,370 wells mapped in this area but 206 or 8.7 per cent were barren of oil or gas. The range of initial production lies between 1 and about 1,600 barrels. The lower lenses have been slightly more productive than the top lens. The distribution of oil has not been even over the area because of the following factors:

1. The porosity of the sands is variable and in many places they are impervious. The drillers have reported the sands hard and dry and thus incapable of containing oil.

2. The sands thin and thicken commonly and in some localities pinch out altogether. Non-porosity usually accompanies such condition. The light producing and barren streak through sections 2, 3, 4, 9, 8 and 7 Martin township offered evidence supporting this.

3. The sandstones are so closely interbedded and related to the shales along the producing zone that cemented mixtures of the two probably prohibit extensive diffusion of oil, gas, or water in some areas.

4. The best productive areas are attended with thicknesses between 20 and 40 feet of sand and are usually free from large amounts of salt water.

5. Local dry spots in the midst of very productive territory cannot be attributed to small depressions or knolls in the sand bodies but they are explained as due to the thinness and non-porosity of the bed. The following few wells illustrate this fact:

Mar. sec. 26, NW. No. 4.

Mar. sec. 36, SW. No. 5.

Ob. sec. 15, SE. No. 8 and 19.

Ob. sec. 10, NW. No. 12.

Rob. sec. 1, NE. No. 7.

H. C. sec. 6, NE. No. 11.

The top lens of the Robinson sand is especially rich in section 9 of Oblong, section 6 of Honey creek, and sections 1 and 2 of Martin townships. The lower lenses are prolific in sections 21, 22, 23, 34, and particularly 26 and 27, Martin township; 10, 14, 15 and 16, Oblong township, and 6, 10 and 15, Honey creek township. Only about half of the records collected furnished information of the initial yield. Enough data, however, was gathered to indicate the distribution of oil in the various sections of the area. The following table shows the number of wells that furnished data of the production. These are listed under headings of townships, sections, No. 1 and lower lenses, and initial production. The gas and dry wells are also given:

*List of Wells in Crawford County, With Initial Productions.*

Location.			Number of wells indicating initial production.							
Township.	Section.	Lenses.	0-10 bbls.	10-50 bbls.	50-100 bbls.	100-200 bbls.	200-500 bbls.	Over 500 bbls.	Gas.	Dry.
Martin.....	1.....	No. 1.....	1	2	4	2	1	.....	1	.....
		Lower.....	5	10	1	.....	1	.....	2	.....
	2.....	No. 1.....	.....	5	7	4	9	.....	.....	2
		Lower.....	3	9	3	2	1	.....	1	.....
	3.....	No. 1.....	.....	.....	1	.....	.....	.....	.....	2
		Lower.....	1	3	.....	.....	.....	.....	.....	.....
	11.....	No. 1.....	.....	.....	.....	.....	.....	.....	.....	4
		Lower.....	1	.....	.....	.....	.....	.....	.....	.....
	12.....	No. 1.....	.....	.....	1	.....	.....	.....	.....	2
		Lower.....	.....	3	.....	.....	.....	.....	.....	.....
	20.....	No. 1.....	.....	.....	.....	.....	.....	.....	.....	5
		Lower.....	1	3	.....	.....	.....	.....	.....	.....
	21.....	No. 1.....	.....	.....	1	2	2	7	.....	3
		Lower.....	3	6	6	12	14	9	.....	.....
	22.....	No. 1.....	.....	5	.....	.....	1	1	1	1
		Lower.....	2	16	6	12	.....	.....	.....	.....
	23.....	No. 1.....	1	4	.....	.....	1	.....	1	8
		Lower.....	.....	12	7	2	1	1	.....	.....
	24.....	No. 1.....	1	3	.....	.....	.....	.....	.....	2
		Lower.....	3	5	1	1	1	.....	.....	.....
	25.....	No. 1.....	.....	4	.....	.....	.....	.....	.....	4
		Lower.....	1	4	2	7	1	.....	.....	.....
	26.....	No. 1.....	.....	1	2	.....	1	.....	.....	1
		Lower.....	1	9	25	18	1	2	.....	.....
	27.....	No. 1.....	.....	1	2	.....	4	.....	.....	3
		Lower.....	2	2	8	12	6	7	.....	.....
	28.....	No. 1.....	.....	1	1	1	.....	.....	.....	6
		Lower.....	3	2	1	3	1	.....	.....	.....
	33.....	No. 1.....	.....	.....	.....	.....	.....	.....	.....	3
		Lower.....	1	.....	.....	.....	.....	.....	.....	.....
	34.....	No. 1.....	.....	4	3	4	2	1	.....	.....
		Lower.....	.....	2	5	5	6	5	.....	.....
	35.....	No. 1.....	.....	1	1	.....	.....	.....	4	1
		Lower.....	2	3	2	.....	.....	.....	.....	.....
	36.....	No. 1.....	.....	14	6	1	.....	.....	.....	3
		Lower.....	2	7	4	1	.....	.....	1	.....
	13, 19, 29, 32.....	No. 1.....	.....	.....	.....	.....	.....	.....	.....	6
		Lower.....	.....	.....	.....	.....	.....	.....	.....	.....
Oblong.....	2.....	No. 1.....	2	1	.....	.....	.....	.....	.....	4
		Lower.....	3	8	8	.....	1	.....	1	.....
	3.....	No. 1.....	2	2	1	.....	.....	.....	.....	3
		Lower.....	1	1	1	1	.....	.....	.....	.....
	4.....	No. 1.....	1	7	1	.....	.....	.....	.....	1
		Lower.....	.....	3	.....	.....	.....	.....	.....	.....
	5.....	No. 1.....	.....	.....	.....	3	.....	.....	.....	5
		Lower.....	.....	2	2	8	2	2	.....	.....
	6.....	No. 1.....	.....	.....	.....	.....	.....	.....	.....	4
		Lower.....	1	3	.....	.....	.....	.....	.....	.....

*List of Wells in Crawford County, With Initial Productions—Continued.*

Location.			Number of wells indicating initial production.							
Township.	Section.	Lenses.	0-10 bbls.	10-50 bbls.	50-100 bbls.	100-200 bbls.	200-500 bbls.	Over 500 bbls.	Gas.	Dry.
Otalong—Concl'd.	7.	No. 1.		1						5
		Lower.	4	10		1				
	8.	No. 1.	3	9	2	1				4
		Lower.								
	9.	No. 1.	1	10	9	7		1		6
		Lower.	1	2						
	10.	No. 1.	1	4		3	1			2
		Lower.	2	5	9	11	2			
	11.	No. 1.		8		1			1	1
		Lower.	8	6		1			4	
	14.	No. 1.		2	1	1		1		6
		Lower.		5	4	6	3	3		
	15.	No. 1.	2	7	1	1	2			3
		Lower.	1	15	12	13	13	1		
	16.	No. 1.	1	2			1			5
		Lower.		3	5	10	8	2		
	17.	No. 1.	3	2	2					7
		Lower.	1	7	2					
	18.	No. 1.								4
		Lower.	2	8	5	1				
	31.	No. 1.			2	1				2
		Lower.		1						
	32.	No. 1.		1	1	1	3			3
		Lower.		2	3	2				
	33.	No. 1.	2	4		4	2			2
		Lower.	1							
	34.	No. 1.	1	3						
		Lower.			1					
	35.	No. 1.	2	3	3					1
		Lower.		4	1					
	1, 11.	No. 1.								3
		Lower.								
Robinson.	1.	No. 1.	1	1						4
		Lower.		1						
	6.	No. 1.		1					1	7
		Lower.	2	6						
	12.	No. 1.		1	1				2	3
		Lower.								
	13.	No. 1.								1
		Lower.	1							
	36.	No. 1.	1		2					3
		Lower.		6	2					
Honey Creek.	4, 6, 7, 8, 9, 10, 16, 17, 18, 31, 32, 33.	No. 1.								13
		Lower.								
	5.	No. 1.							1	4
		Lower.		1	2					

*List of Wells in Crawford County, With Initial Productions—Concluded.*

Location.			Number of wells indicating initial production.							
Township.	Section.	Lenses.	0-10 bbls.	10-50 bbls.	50-100 bbls.	100-200 bbls.	200-500 bbls.	Over 500 bbls.	Gas.	Dry.
Honey Creek— Concluded.....	6.....	No. 1.....	.....	3	5	3	1	1	.....	8
		Lower.....	.....	3	5	3	1	2	1	
	10.....	No. 1.....	.....	1	.....	4	1	.....	.....	2
		Lower.....	.....	.....	1	.....	.....	.....	.....	
	15.....	No. 1.....	.....	4	1	1	.....	.....	.....	1
		Lower.....	.....	.....	1	.....	.....	.....	.....	
	16.....	No. 1.....	1	4	1	1	.....	.....	.....	2
		Lower.....	1	3	.....	.....	.....	.....	.....	
	31.....	No. 1.....	.....	4	2	.....	.....	.....	1	4
		Lower.....	7	17	6	.....	.....	.....	.....	
	32.....	No. 1.....	.....	.....	.....	.....	.....	.....	2	8
		Lower.....	4	3	1	.....	.....	.....	.....	
	2, 3, 7, 8, 9, 17, 18, 19, 20, 28, 29, 30, 33, 34.....	No. 1.....	.....	.....	.....	.....	.....	.....	17	16
		Lower.....	.....	.....	.....	.....	.....	.....	.....	
Total.....		No. 1.....	27	130	64	131	32	13	42	206
		Lower.....	71	221	142	46	63	33	.....	

In general throughout the field gas occurs with oil, but not in large quantities. The wells yielded enough for use on the leases and often for drilling but not for commercial use. The thin stray lens above the No. 1 yielded abundant gas, particularly in the northwest corner of Honey creek township. The quantities were from 1,000,000 to 4,000,000 cubic feet daily and under pressures from 200 to 400 pounds to the square inch. These wells are connected to large mains and furnish gas to nearby towns. This same lens is productive of less quantities of gas in sections 2 and 35, Oblong township and 36 and 1, Robinson township.

The contours of the No. 1 lens reveals a small dome on the anticline in section 35, Martin township. Several small gas wells lie about 25 feet down from the crest of the arch or within the 1,160-foot contour. It is true that in Crawford county, as well as in Lawrence county, the best gas wells are not necessarily found on the highest points of the arch but are located on its slopes. Since the oil lies lower structurally than the gas, the same would follow for the oil accumulation. This would perhaps suggest that where the crests of anticlines are known in unproven areas, drilling should be started slightly to either side of the highest point.

## RELATIONS OF SALT WATER TO STRUCTURE.

The oil field shows salt water at many points, but particularly along its western limit. Water does not uniformly fill the rocks of the region,

as there are many dry strata, of which some are capable of containing water. Great quantities of salt water occur upon the limbs of the anticline and in the Illinois basin beyond the productive area and at its sharply defined boundaries. All the lenses of the Robinson sand are well saturated along this line, but the upper lenses are generally barren of water within the oil pool. The lower lenses reveal water across the fold and in some portions under the oil. Drilling has proven that the oil lies near the top of the lower sand lenses and consequently but few wells pass through the oil stratum and into the water for fear of drowning out the oil. The water is generally very abundant and seems to be under pressure. Its release from the sand sets up a very rapid flow that is difficult to stop.

The basin which divides the major arch in the Robinson pool is barren of water but is productive of oil. This corroborates the theory as to the accumulation of oil in dry rocks. The first lens, however, is less productive than the lower ones through this basin.

The trough that separates the Honey creek and Robinson pools shows salt water in the scattered dry wells drilled into it. Most of the wells in the portion of the Honey creek pool included in this report were only drilled into the oil pay. The wells that penetrated beneath the pay tapped the salt water zone which would indicate that the water controls the accumulation of the oil and instrumental in holding it captive in its present position.

The eastern side of the oil field also shows abundant water in the lower lens but apparently not so much as at the corresponding level on the steeper limb of the arch. Both water and oil are irregularly distributed on the east limb of the anticline.

#### CONCLUSION.

It is obvious from the position of the water and oil along the LaSalle anticline that the water has controlled the accumulation of oil in the arch. The water probably has been a means of originally collecting and causing the oil to migrate from long distances up the slope of the arch and into its crest. This is effective for all lenses of the Robinson sand. The degree of saturation is variable over the crest of the arch. The lower lenses are frequently reported saturated with water through the field whereas, for the most part, the upper lens shows little saturation.

## CHAPTER IV.

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### Detailed Geology of the Lawrence County Field.

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#### GENERAL FEATURES OF THE OIL FIELD.

The shape and extent of the oil field in Lawrence county is shown in Plate VI, the base map of the area. The development is indicated to July 1, 1911. The field has a northwest and southeast trend with its northern limit exactly on the Lawrence-Crawford county line and its southern-most extremity in sections 11 and 12, T. 2 N., R. 12 W. The pool is continuous for 17 miles, although it is thinly developed at both ends. It is about  $2\frac{1}{2}$  miles wide from the county line to about 9 miles south. It then broadens and includes the Dennison township fields in a width of about 5 miles and narrows again at the extreme southern end to about 3 miles. The field changes its course on the vicinity of Bridgeport from about north 24 degrees west to north 44 degrees west, or 20 degrees.

The western edge of the oil field is similar in character to that of Crawford county, in that it is almost abrupt and uniform, except for a small detached area in sections 20, 29 and 30, Bridgeport township. This extension of the field is due to a small terrace on the western slope of the anticline, indicated later in one of the cross-sections. The eastern edge of the field, like that of Crawford county, is very irregular and is probably due to the flattening of that side.

The Lawrence county field is the richest of the eastern Illinois fields. It has produced more large wells than the rest of the fields combined and its wells have maintained steadier production than those of any other locality in the State. This field is prominent because of its large number of producing sands ranging in depth from 800 to 1,900 feet, or from the top of the Pottsville rocks in the Pennsylvanian series to the top of the hard and thick St. Louis limestone of the Mississippian series. There is a shallow sand at about 450 feet that produces oil but its distribution is limited to a very small area in sections 2 and 3, Dennison township. The other producing sands are in order of depth, the three Bridgeport lenses, Buchanan, "Gas," Kirkwood, Tracey and McClosky sands.



## DETAILED STRUCTURE OF THE DISTRICT.

## THE "SHALLOW" SAND.

A shallow sand is productive in sections 2 and 3, T. 2 N., R. 12 W. It lies at a depth of from 444 to 485 feet or from 25 feet above sea level to about 17 feet below. The initial production was light, averaging about 12 barrels per day. This sand is thought to be the equivalent of a shallow sand in section 27, Martin township, Crawford county and possibly of one of the Clark county sands. Further details of the sand are found in the tables of well data.

## BRIDGEPORT SAND.

The Bridgeport sand derived its name from the town of Bridgeport near the middle of the Lawrence county field. The first well in this field and in this sand was drilled by the Big Four Oil Company in July, 1906, on a narrow strip of land north of the Baltimore, Ohio and Southwestern Railroad and south of the public road in Bridgeport. At the same time that the well was drilled the land belonged to the town of Bridgeport.

The Bridgeport sand is widely developed both north and south of the town. The initial productions of the sand are good. This fact, together with the shallow depth at which the oil is found, attracted attention to the field as a very promising area for exploration. The sand is found over the whole field but is especially productive of oil in sections 31, 32, 5, 6, 7, 8 and 17, Bridgeport township. It is productive of good pressures of gas and some oil in sections 34, 35, 3 and 2, Dennison township.

The Bridgeport sand is lenticular and closely resembles the Robinson sand. In fact it seems to correspond to that sand in position and physical features as shown in the discussion of the stratigraphy of the two counties, page 83. This sand comprises three general lenses and some smaller ones in several parts of the oil field. The depths of the sands vary between 600 and 1,000 feet. Thus a range of depth is due to a sharp uplift of the LaSalle anticline and to the irregularity in the surface. It is impossible to average the thickness of the lenses for the whole of the county, so great is their variability. Some of the lenses are but a few feet thick and others are over 300 feet through. North of Bridgeport they average about 35 feet. In the other areas of good production, the pay lenses have a wide range of thickness. It is also impossible to average the interval between lenses because of the wide difference over the field. The records in many instances show that the lower lenses of the Bridgeport sand merge into the massive sandstone that is characteristic of the Buchanan or basal portion of the Pottsville rocks.

No attempt was made to show the structure of this horizon by means of contours or cross-sections because of the uncertainty of correlation. Moreover the lack of sufficient detailed logs also prohibited any general conclusions as to the distribution of the sand. The oil and salt water relations are discussed later.

## BUCHANAN SAND.

The Buchanan sand is the next producing sand lower than the Bridgeport. It was first discovered in September, 1906, by the Ohio Oil Company on the R. O. Buchanan farm in the S.  $\frac{1}{2}$  S. E.  $\frac{1}{4}$  Sec. 16, Lawrence township. The pay was found at 1,332 feet. The type area for the sand lies in sections 15 and 16 Lawrence township; sections 21 and a portion of 22, Dennison township; and sections 17 and 20 of Bridgeport township. Data of the sand are very scattered over the rest of the field. There are enough facts known, however, to show the general structure up to and including sections 24, 19 and 20, Petty township. The information north of these sections is scant and unreliable because of the association of the Buchanan sand with the upper Bridgeport lenses.

The Buchanan sand comprises the basal part of the Pottsville rocks and is characterized by thick or massive sandstones over most of Illinois. These rocks mark the lowest portion of the Pennsylvanian series and lie unconformably on the Chester or upper division of the Mississippian rocks. Most of the well data in the tables indicate shallow penetration into this sand, which was tapped and entered a short distance in order to provide for a sufficient and safe shot. The oil zone is usually underlain with salt water, which, if tapped, offers danger of drowning the oil. In some localities of the State this sand is called the "Salt sand" because saturated with salt water. This sand has been one of the most prolific producers of oil in the Illinois fields. Its wells have yielded large quantities of oil and but little gas.

## DETAILED STRUCTURE.

The altitudes of the top of the Buchanan sand were assembled and contoured in Plate VII. In some localities of the field wells giving data were so far apart that it was not justifiable to draw definite contour lines. The dashed lines were substituted to indicate the approximate structure.

The general structure of the Buchanan sand reveals a very irregular surface. The type area of the sand is the most completely drilled. Data from this locality shows two small, symmetrical, domes, one in section 17, Bridgeport township and the other in sections 15 and 16, Lawrence township and section 21, Dennison township. The west dome (section 17) is 107 feet high. It is enclosed by the 640-foot contour line and covers about  $1\frac{1}{4}$  square miles. The crest of the dome lies in the SW. cor., NE.  $\frac{1}{4}$  sec. 17. The second dome is 99 feet high and is also enclosed by the 640-foot contour. It covers about 2 square miles of area. Its crest lies along the W.  $\frac{1}{2}$  SW.  $\frac{1}{4}$  sec. 15, Lawrence township.

The sand dips rapidly from the first dome in the type area toward the southwest. From the crest of this dome to Bport., sec. 30 SE., No. 3, the dip is 262 feet in about  $2\frac{1}{2}$  miles or at the rate of 105 feet per mile. This rapid dip merges into a minor terrace in the lower sands in the NW. cor., sec. 29, but is not shown for the Buchanan sand.

The structure is very irregular east and south of the type area of the Buchanan sand. The contours range from 600 to 760 feet. They show

a general dip to the east. The west side of this part of the field is high structurally but unproductive.

The Buchanan sand dips sharply north of the type area and then gradually rises into an uplift of the main axis of the LaSalle anticline that has the appearance of a narrow double plunging anticline. The apex of this dome-like structure lies near the center of section 30, Petty township. The rise to the north from Bport., sec. 17, NE., No. 15 to Pet. sec. 30, SE., No. 66 is 368 feet in  $3\frac{3}{8}$  miles, or at the rate of 108 feet per mile. The sides of the dome dip very steep to the west and east from its apex, with the steeper slope to the west. The dip along the C-C cross-section from Pet. sec. 30, SE., No. 66 to Bport. sec. 36, SE., No. 3 is 328 feet in  $1\frac{1}{8}$  miles, or at the rate of about 290 feet per mile. The dip east from the crest of the dome to Pet. sec. 20, SE., No. 7 along the same cross-section is 223 feet in  $1\frac{1}{4}$  miles, or at the rate of 178 feet per mile. The western side of the dome dips 112 feet more per mile than the eastern side. This is in keeping with the nature of the LaSalle fold exposed near LaSalle. The structure contours reveal a rapid plunge of the sand from the dome to the north and then a rise into a second dome with a crest 22 feet lower than the major uplift. The dip from the crest of the first dome to Pet. sec. 30, NE., No. 22, at the bottom of the basin, is 123 feet in about one-half of a mile. The rise from the bottom of the basin to Pet. sec. 19, SE., No. 38, the crest of the second dome, is 101 feet in about three-fourths of a mile. The contours indicate a uniform dip northward from the second dome. The dip of this sand along the western side of the anticline is uniform.

A small though conspicuous terrace interrupts the long sweeping rise from the type area of the Buchanan sand into the dome in Petty township. It lies in sections 7 and 8, Bridgeport township along the 700-foot contour. The area covers about one-half of a square mile. The wells yielded good initial productions of oil.

#### "GAS" SAND.

The "Gas" sand is so named because it produces small amounts of gas wherever encountered, though in some instances it is productive of oil. The sand underlies the Buchanan sand and is usually the first or second sand in this district penetrated in the Mississippian or, specifically, the Chester rocks. There are 36 wells in the area that furnish data for both Buchanan and "Gas" sands and from these the average interval between these sands is found to be 198 feet.

The sand is definitely correlated from section 36, Petty township to sections 5 and 6, Bridgeport township. Without detailed knowledge of the plunging anticline in section 30, Petty township or the stratigraphy of the area, the oil men have confused the "Gas" sand with the upper sands, particularly with the Buchanan bed, and in some instances with the Kirkwood sand beneath. The relations of this sand to the others of the region are geographically shown in cross-sections A-A, B-B, and C-C.

The average thickness of the "Gas" sand estimated from data furnished by 245 wells is 16 feet with a range from 1 to 68 feet.

The "Gas" sand produces gas over most of the contoured area. The amounts were not reported.

#### DETAILED STRUCTURE.

The altitudes of the top of the "Gas" sand were assembled and contoured in Plate VIII. The structure of this sand is the most regular of any in this field, with the exception of the Kirkwood. The contours indicate a uniform dip of the sand along the east and west flanks of a strongly defined anticline. The structure further confirms the double plunging of the major fold both to the north and south. The highest point of the anticlinal dome is in Pet., sec. 30, NE., No. 5. The dip to the north from this point to Pet., sec. 36, NW., No. 12, is 232 feet in slightly over 5 miles or at the rate of about 46 feet per mile. The decline to Bport., sec. 17, NE., No. 39, is 246 feet in  $4\frac{3}{8}$  miles or at the rate of about 56 feet per mile. The western dip from the crest to Bport., sec. 36, SE., No. 8, is 321 feet in  $1\frac{3}{4}$  miles or at the rate of 183 feet per mile. The dip eastward from the crest to Pet., sec. 29, NE., No. 7, is 210 feet in seven-eighths of a mile.

The two lowest points along the western flank of the anticline conform to the 440-foot contour. The field is bounded by the 500-foot contour on the west and the 600-foot contour on the east. The contours south of the north line of sections 5 and 6, Bridgeport township, were broken because the data was scattered and somewhat indefinite.

#### KIRKWOOD SAND.

The Kirkwood sand was first developed in 1907 by the Burton Bros. Oil Company on the Thomas Kirkwood farm in the E.  $\frac{1}{2}$  NE.  $\frac{1}{4}$  sec. 14, Lawrence township, now known as the R. M. Kirkwood farm and operated by the Bridgeport Oil Company. This sand is the most widely developed and productive of any in the Lawrence county field. It extends from section 36, Petty township, to section 8, Dennison township and spreads into all outlying pools, thus indicating the shape and extent of the Lawrence county field.

The Kirkwood sand is the most widespread sand that is productive of oil in the Illinois basin. It is the equivalent of the Sparta sand of Randolph county, the Lindley gas sand of Greenville, the Carlyle oil sand of Clinton county, the Benoist sand of Marion county, and the Oakland City sand of Pike county, Indiana. This sand lies low in the Chester series and is usually overlain by a succession of shales, limestone, some sandstone, and at least two and often three red shales. The second red shale usually serves as its horizon marker as the red rock is easy to distinguish because it discolors the water used in drilling.

The Kirkwood sand is lenticular in some portions of the field. It is subdivided into two and often three thin lenses. The surface of the top lens, however, is uniform over the county and is taken as a basis of contouring.

The sand shows excellent initial productions and has promise of being long lived and steady in its yield. It is the most reliable of all the sands. There is little or no gas yield from it except close to the

northern limits of the county. The oil is a "sweet" oil containing a small percentage of sulphur and has about 36° gravity, Beaume.

There are three areas in the field where this sand is especially productive. The type locality includes sections 11, 12, 14, 15, Lawrence township and sections 22, 23, 25, 26 and 36, Dennison township. The next important area lies about the anticlinal dome spoken of under the discussion of the upper sand beds of the field, page 107. This area includes sections 19, 20, 29 and 30, Petty township, and sections 6, 31, 32 and 36, Bridgeport township. A less important area is well developed in parts of sections 7, 8, and 17, Bridgeport township.

Data from 220 wells in the Lawrence county field indicate an average interval of 67 feet between the Kirkwood and "Gas" sands in the upper part of the field, and 243 wells indicate an average interval of 265 feet between the Kirkwood and Buchanan sands in its lower part, where the "Gas" sand is not correlated. The average interval between the Kirkwood and "Gas" sands in 157 wells in Petty township is 63 feet. There are 63 wells in the northern part of Bridgeport township that show an average interval of 78 feet between the two sands. The range of interval lies between 26 and 134 feet.

The intervals between the Kirkwood and Buchanan sands were calculated for that portion of the field south of Petty township. Those in Petty township were not averaged because of the uncertainty of correlation of the Buchanan sand.

There are 85 wells in Bridgeport township that show an average interval of 255 feet between the two sands; 57 wells in Lawrence township with an interval of 244 feet; and 101 wells in Dennison township with an average interval of 287 feet. The interval therefore seems to increase toward the southern end of the field. There are eight wells on the terrace in sections 20, 29 and 30, Bridgeport township that show an average interval of 450 feet between the sands. This seems to indicate a rapid thickening of the formations as they dip west into the Illinois basin, adjacent to the LaSalle anticline. The wells in the eastern extension of the field in sections 11 and 12 of Lawrence township indicate a lessening of interval between the sands and an average of about 200 feet.

The thickness of the Kirkwood sand is very irregular over the field. It is found to average about 30 feet in those wells that pass through the sand.

#### DETAILED STRUCTURE.

The altitudes of the top lens of the Kirkwood sand were assembled and contoured in Plate IX. The contours on this sand give a most complete and satisfactory idea of the structure of the LaSalle fold. The information was abundant and widely distributed.

The upper part of the field from sections 35 and 36, Petty township, to and including sections 7 and 8, Bridgeport township, shows an elongated dome or double plunging anticline. The actual top of the dome lies around Pct. sec. 30, SE., No. 55. The sand dips in four directions from this well. The general crest lies within the 680-foot

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contour and has an areal extent of about 80 acres. A part of it overlaps into section 29, Petty township. The sand dips 240 feet northward along the A-A cross-section, between the crest and Pet. sec. 35, NE., No. 2, a distance of  $5\frac{3}{4}$  miles. The rate of dip is 41 feet per mile. The dip to the east along the C-C cross-section to Pet. sec. 20, SE., No. 10, is 219 feet in  $1\frac{1}{8}$  miles or 194 feet per mile. The dip to the west along the same cross-section to Bport. sec. 36, SE., No. 8, is 342 feet in  $1\frac{1}{2}$  miles or at the rate of 228 feet per mile. The southward dip of the sand through the center of the field to Den. sec. 22, NW., No. 5, is 335 feet in  $5\frac{1}{4}$  miles or at the rate of 63 feet per mile.

The dome-like structure merges into a mild trough in sections 4, 9, 10, Lawrence township, and sections 21 and 22, Dennison township. The sand then lies flat to the south through Lawrence and Dennison townships forming a broad plateau-like crest of the major fold. The sand lies at a uniform level at about the 400-foot contour. The sands on both sides of the field and to the south dip toward the limbs of the major fold. The southern limits of the field seem to gradually drop lower than the producing zone of the sand. Whether the major fold continues to drop, until it merges into the southeastern side of the eastern interior coal basin or whether the drop is local, as seems to be the case between Crawford and Lawrence counties, is not known. At any rate the anticline loses much of its identity as a structural fold, thus suggesting its mergence into the rim of the basin.

The terrace in sections 20, 29 and 30, Bridgeport township, previously spoken of, is prominently shown by the Kirkwood sand contours. It seemingly covers an areal extent of about 240 acres and lies between the 100 and 120-foot contours. This is about 300 feet lower than the producing sand in the Kirkwood area of Dennison township, three miles east. Further drilling will possibly extend production until the area will cover several times its present extent.

#### TRACEY SAND.

The Tracey sand was first developed in 1908 by Busch and Everett in the R. J. Tracey farm in the NW.  $\frac{1}{4}$ , NE.  $\frac{1}{4}$ , sec. 13, Lawrence township. This sand is not found widely productive of oil. The type localities lie in sections 11 and 14, Lawrence township; sections 25 and 26, Dennison township; and sections 19 and 30, and sections 25, 26, 35 and 36, Petty township.

This sandstone is soft and calcerous. It overlies the Ste. Genevieve and massive St. Louis limestones, which the oil men often call the "big lime." The Tracey sand lies in the basal portion of the Tribune formation and does not correspond to the Cypress sandstone, as has been suggested by the author in his earlier studies of the stratigraphy of the area.<sup>1</sup>

Data from 194 wells over the entire field indicate an average interval of 114 feet between the Kirkwood and the Tracey sands. The average interval for each of the townships is shown in the following table:

<sup>1</sup> Economic Geology, Vol. VII, No. 6, September, 1912, p. 579



*Intervals Between Kirkwood and Tracey Sands.*

Township.	Number of wells giving data.	Average interval between the Kirkwood and Tracey sands in feet.
Dennison.....	65	105
Lawrence.....	21	111
Bridgeport.....	30	118
Petty.....	78	120

The interval seems to widen as the sands dip into the limbs of the anticline. The interval in Pet. sec. 15, NE., No. 1, is 160 feet and in Pet. sec. 23, NE., No. 1, 210 feet. The intervals lessen to the north to about 40 feet. This fact is borne out by the A-A cross-section.

The Tracey sand yields excellent pressures of gas in the northern half of the field. The gas has a rank odor in consequence of its large sulphur content, and the oil is "sour." This sand is so closely associated with the underlying limestones that its oil and gas probably had its origin from them.

## DETAILED STRUCTURE.

The altitudes of the top of the Tracey sand were assembled and contoured on Plate X. The data were too scattered to warrant well defined contouring, hence many of the contour lines are broken to indicate merely the general trend of the structure. Only the type localities mentioned above justified continuous contour lines. The structure of the sand closely resembles that of the overlying Kirkwood except that the dips are not so pronounced. As with the other sands, the Tracey conforms to the dome-like structure in Petty township. The crest of the dome lies at Pet. sec. 30, SE., No. 63. The dip northward to Pet. sec. 26, NE., No. 2, is 247 feet in  $6\frac{5}{8}$  miles or at the rate of 37 feet per mile. The sand appears very flat in parts of sections 12, 13, and all of 18, about  $1\frac{1}{2}$  miles north of the apex of the dome. The fold dips equally about 240 feet to both sides of this flat. The dip south from the apex of the dome to Law. sec. 10, SW., No. 1, is 283 feet in  $3\frac{7}{8}$  miles or at the rate of 73 feet per mile. The Tracey, like the Kirkwood horizon, assumes a plateau-like nature on the crest of the anticline to the south of the last mentioned well.

## McCLOSKEY SAND.

The McClosky sand was developed by the International Oil and Gas Company on the M. McClosky farm in the NW.  $\frac{1}{4}$  SE.  $\frac{1}{4}$  section 25, Dennison township. The type locality for this sand lies in sections 25 and 36, Dennison township. It is also productive at the same level in sections 11, 12, 13 and 14, Lawrence township. This formation is extensively developed in a long narrow strip beginning in the NE.  $\frac{1}{4}$  section 6, Bridgeport township and extending through the middle of the field into section 19, Petty township. The McClosky sand is widely developed in the northern end of the field in sections 1, 7, 11, 12, 13, 18, 25, 35 and 36, Petty township.

The McClosky sand is a soft oolitic limestone known as the Ste. Genevieve. This limestone underlies the Cypress and Chester rocks and overlies the massive and hard St. Louis limestone. The contact between the overlying Chester and the Ste. Genevieve in Lawrence county is well defined but the lower portion of the Ste. Genevieve merges into the St. Louis. In many places the two limestones can be distinguished only by the difference in their hardness and the presence of oolites in the Ste. Genevieve.

Data from 150 wells in the Lawrence county field show an average interval of 104 feet between the McClosky and Tracey sands. The average interval in each of the townships is shown in the following table:

*Intervals Between Tracey and McClosky Sands.*

Township.	Number of wells giving data.	Average intervals between the Tracey and McClosky sands in feet.
Dennison.....	43	113
Lawrence.....	14	118
Bridgeport.....	15	105
Petty.....	78	96

The interval widens perceptibly as the sand dips into the limbs of the anticline. The interval in Pet. sec. 15, NE. No. 1, is 174 feet and in Pet. sec. 23, NE., No. 1, is 175 feet.

The McClosky sand has yielded the largest initial productions of any of the producing sands in Illinois. It is not widely developed because of the large expense incurred in drilling. The wells in the northern section of the field have been good producers and have yielded some gas. The oil and gas have a large sulphur content. The southern part of the field has yielded several oil gushers and but one or two gas wells. The oil has a much smaller sulphur content than that from the northern portion of the field.

#### DETAILED STRUCTURE.

The altitudes of the top of the McClosky sand were assembled and contoured in Plate XI. The contours reveal one major and three minor domes along the crest of the anticline. The first dome lies at the northern boundary of the county, in sections 25 and 36, Petty township. It falls within the 320-foot contour. The top of the dome covers about three-fourths of a square mile.

The sand dips from this dome into a basin about 90 feet deep and then gradually rises into a terrace through sections 12, 13, 18 and 19, Petty township. The terrace merges rapidly into the major dome of the fold in section 30, Petty township. The top of the dome lies at Pet. sec. 30, SE., No. 59. The dip from the apex eastward to Pet. sec. 20, SE., No. 10, is 164 feet in  $1\frac{1}{8}$  miles, or at the rate of 145 feet

per mile. The dip westward to Bport. sec. 31, SW., No. 5, is 218 feet in  $1\frac{1}{8}$  miles, or at the rate of 193 feet per mile. The west dip of the fold is 45 feet greater than the east dip for the same distance. There are two very small domes or sharp pinnacles in the sand immediately south of the major uplift. The crests of these lie at Pet. sec. 32, SW., Nos. 10 and 17. The sand lies at 413 and 418 feet respectively above the assumed datum plane of 1,500 feet below sea level or only 27 feet below the top of the largest dome.

The data are scanty along the sides of the main anticline and therefore the contours are dashed. They show strong dips to both sides of the field and a long gentle dip to its southern end. The structure of the sands in the southern half of the field is very similar to that of the Kirkwood and Tracey sands. The crest of the anticline merges from the major dome into an extensive flat area which lies uniformly around the 160-foot contour.

## CROSS-SECTIONS.

### GENERAL STATEMENT.

Four cross-sections were constructed along lines that pass through and across the Lawrence county field. They were chosen especially with respect to the structure of the area, as it is desired to show the nature of the crest of the LaSalle anticline as well as the flanks. The sections were also chosen along lines that pass through or near a large number of wells.

The cross-sections were constructed by plotting records with respect to sea level. A line representing sea level was drawn, and another representing an ideal surface 500 feet above it. This is marked off to correspond with the points where the line crosses section or township lines. The names of the townships are placed in their proper positions. The records of the wells were located with respect to their position along the line and above sea level. They were then plotted with uniform symbols and scale. Wherever the cross-section line cut a contour line the altitude of the contour was marked with a cross and set in its proper position. Correlation lines were then drawn through all crosses representing the altitude of a particular sand and between similar formations in detailed records. Since a datum plane 1,500 feet below sea level was used to make the contouring read positive this line is drawn on the sections merely to emphasize its use. The position of any sand can be measured directly above the datum plane line and the figures thus obtained should correspond with those obtained from the structure maps and those recorded in the tables of well data.

### CROSS-SECTION A-A.

The A-A cross-section, Pl. XII, presents the structure of the sands along the crest of the anticline and through the middle of the entire Lawrence county field. As a whole the section is especially valuable since it shows the double plunging anticline, the crest of which lies in section 30, Petty township, the convergence of the sands at the northern end, and the dip from the dome into the flat at the southern end of the

field. The sands are shown to be generally parallel with local irregularities that seem due, in most cases, to the thinning and thickening of the sand. All sands conform to a mild basin at the foot of the elongated dome in sections 9 and 16, Lawrence township.

## LOGS.

The section is made up from many skeleton logs which are found in the tables of well data. The detailed logs are presented below.

The records of the following wells are found in the tables:

*List of Wells in Lawrence County Furnishing Data for Cross-Section A-A.*

Township.	Section.	Quarter-section.	Well number.
Petty.....	26.....	NE.	1
	26.....	SE.	4
	35.....	NE.	2
	36.....	NW.	11
	36.....	SW.	5
	36.....	SW.	6
	12.....	NE.	4
	12.....	NE.	5
	12.....	NE.	6
	12.....	NE.	14
	12.....	NE.	12
	12.....	SE.	10
	12.....	SE.	9
	18.....	NW.	17
	18.....	NW.	16
	18.....	NW.	15
	18.....	SW.	1
	18.....	SW.	3
	19.....	NW.	3
	19.....	NW.	4
	19.....	NW.	5
	19.....	NW.	6
	19.....	SW.	21
	19.....	SE.	19
	19.....	SE.	16
	19.....	SE.	14
	19.....	SE.	3
	30.....	NE.	13
	30.....	NE.	15
	30.....	NE.	26
	30.....	SE.	60
	30.....	SE.	59
	30.....	SE.	69
	30.....	SE.	76
Bridgeport.....	32.....	NW.	35
	32.....	NW.	33, 34
	32.....	SW.	23
	32.....	SW.	26
	5.....	NW.	9, 10
	5.....	NW.	4
	5.....	NE.	10
Lawrence.....	5.....	NE.	9
	5.....	SE.	15
	9.....	SW.	15
	9.....	NE.	4
	15.....	NW.	12
	15.....	NW.	11
	15.....	NW.	7
Dennison.....	15.....	SW.	22
	15.....	SW.	20
	15.....	SE.	1
	22.....	NE.	4
	22.....	NE.	8
	23.....	SW.	1
	23.....	SW.	5
	26.....	NW.	1
	26.....	NE.	14
	26.....	NE.	10
	26.....	SE.	15

*List of Wells in Lawrence County—Concluded.*

Township.	Section.	Quarter-section.	Well number.
Dennison—Concluded..	25.....	SW.	2
	25.....	SW.	3
	36.....	NW.	2
	36.....	NE.	13
	36.....	SE.	19
	36.....	SE.	16
	36.....	SE.	9
	6.....	NW.	5
	6.....	NW.	4
	6.....	SE.	1
	8.....	NW.	1
	8.....	NW.	2
	.....	.....	.....
	.....	.....	.....
	.....	.....	.....
	.....	.....	.....

The following logs are those shown in detail in the cross-section and briefly referred to in the tables:

*Pet. sec. 36, SW., No. 8.*

Operator—Snowden Bros.  
Farm and well—Petty, No. 1.  
Elevation—436 feet.

	Thickness Feet	Depth Feet
Sand and gravel, loose .....	112	112
Slate, blue, soft .....	68	180
Limestone, gray, hard (3 bailers water, 190 feet) .....	10	190
Slate, brown, soft .....	110	300
Limestone, yellow, hard .....	6	306
Slate, blue .....	10	316
Slate, brown, hard .....	124	440
Slate, black, soft .....	10	450
Coal .....	4	454
Shells .....	15	469
Slate, white, hard .....	55	524
Shell, blue, hard .....	5	529
Coal .....	5	534
Slate, blue, soft .....	56	590
Shale, white, hard .....	15	605
Shale, brown, soft .....	85	690
Slate, black, soft .....	10	700
Slate, blue, soft .....	10	710
Slate, brown, hard .....	15	725
Limestone, white, hard .....	10	735
Shale, white, soft .....	10	745
Limestone, blue, hard .....	20	765
Shells, hard .....	15	780
Limestone, red, soft .....	5	785
Slate, blue, soft .....	10	795
Limestone, blue, hard (2 bailers water, 800 feet) .....	5	800
Slate, blue, soft .....	15	815
Limestone shells, gray, hard .....	20	835
Slate, black .....	35	870
Sand, white (10 bailers water per hour, 885 feet) .....	15	885
Slate and shells, blue .....	35	920
Sand (hole full of water, 980 feet) .....	60	980
Slate, blue, soft .....	25	1,005
Sandy shale, brown .....	90	1,095
Sand, white, soft .....	8	1,103
Slate, black .....	10	1,113
Sand, gray, hard .....	62	1,175
Slate, black .....	10	1,185
Sand, white .....	35	1,220
Slate, brown, soft .....	20	1,240
Sand, loose .....	15	1,255
Slate, light brown, soft .....	5	1,260
Limestone, hard .....	5	1,265
Sand, white, hard .....	10	1,275
Limestone, gray, hard .....	10	1,285
Slate, blue, soft .....	13	1,298
Sandy limestone .....	28	1,326
Oil sand .....	10	1,336

*Logs—Continued.*

	Thickness Feet	Depth Feet
Slate, blue, soft.....	10	1,348
Limestone, yellow, hard.....	20	1,368
Oil sand, white, soft.....	26	1,392
Limestone, gray.....	8	1,400
Sand, white, oil.....	12	1,412
Slate, blue, soft.....	10	1,422
Total depth.....		1,422
Initial production, 125 bbls.		

*Pet. Sec. 36, SW., No. 10.*

Operator—Snowden Bros.  
Farm and well—Petty, No. 3.  
Elevation—435 feet.

	Thickness Feet	Depth Feet
Sand, white, soft.....	100	970
Slate, blue, soft.....	130	1,100
Limestone, light, hard.....	15	1,115
Sand, white, hard.....	100	1,215
Slate, blue, soft.....	10	1,225
Limestone, gray, hard.....	5	1,230
Sand, white, hard.....	15	1,245
Slate, white, soft.....	5	1,250
Limestone, light, hard.....	30	1,280
Slate, white, soft.....	5	1,285
Limestone, light, hard.....	20	1,305
Slate, light brown, soft.....	5	1,310
Sand, hard (oil 1,328 to 1,332 feet).....	22	1,332
Slate, light brown.....	15	1,347
Limestone, gray, hard.....	17	1,364
Slate, blue, soft.....	3	1,367
Sand, white, soft (oil 1,375 to 1,387 feet).....	20	1,387
Slate, blue, hard.....	5	1,392
Limestone, hard.....	10	1,402
Sand, white, soft.....	12	1,414
Limestone, blue, hard.....	21	1,435
Total depth.....		1,435

*Pet. sec. 1, NW., No. 3.*

Operators—Snowden Bros.  
Farm and well—Drole, No. 7.  
Elevation—435 feet.

	Thickness Feet	Depth Feet
Clay, soft.....	18	18
Sand and gravel, soft.....	96	114
Slate, soft.....	108	232
Sand, hard.....	10	242
Shell, hard (water).....	23	265
Slate, white, hard.....	95	360
Slate, dark, hard.....	60	420
Shell, hard.....	5	425
Coal.....	6	431
Slate, light, soft.....	269	700
Shell, light, hard.....	25	725
Slate, light, dark, red and blue, soft.....	90	815
Sand, hard (water).....	25	840
Slate, light, soft.....	10	850
Sand, white, loose.....	45	895
Slate, light, soft.....	5	900
Sand, white, hard.....	63	963
Slate, light, soft.....	50	1,013
Slate, dark, hard.....	40	1,053
Limestone, gray, hard.....	7	1,060
Slate, light, soft.....	50	1,110
Sand, gray, loose (water, 1,150 to 1,240 feet).....	40	1,150
Sand, white, hard.....	90	1,240
Limestone, gray, hard.....	30	1,270

*Logs—Continued.*

	Thickness Feet	Depth Feet
Slate, dark.....	20	1,290
Slate, light, loose.....	28	1,318
Oil sand, gray, loose.....	8	1,326
Slate, dark, hard.....	12	1,338
Limestone, gray, hard.....	25	1,363
Sand, white, loose.....	12	1,375
Slate, black, hard.....	9	1,384
Sand, white, hard.....	18	1,402
Oil sand.....	10	1,412
Slate, dark, hard.....	2	1,414
Limestone, gray, hard.....	17	1,431
Total depth.....		1,431

*Pet. sec. 1, SW., No. 5.*

Operators—Snowden Bros.  
Farm and well—Piper, No. 9.  
Elevation—435 feet.

	Thickness Feet	Depth Feet
Soil.....	18	18
Mud, blue, soft.....	4	22
Slate, light, soft.....	34	56
Sand, white, soft (water).....	2	58
Slate, light, soft.....	57	115
Coal.....	2	117
Slate, light, soft.....	123	240
Limestone, white, soft.....	6	246
Slate, white, soft.....	59	305
Slate, black.....	20	325
Slate, white.....	30	355
Limestone, white, hard.....	8	363
Slate, white, soft.....	15	378
Slate, black.....	32	410
Slate, light.....	10	420
Coal.....	3	423
Limestone, white, hard.....	3	426
Slate, black, soft.....	42	468
Sand, white, soft.....	7	475
Coal.....	4	479
Slate, white.....	21	500
Slate, brown.....	52	552
Slate, white.....	20	572
Sand, white, hard.....	6	578
Slate, white, soft.....	17	595
Slate, brown.....	45	640
Slate, black.....	12	652
Slate, light.....	33	685
Limestone, white, hard.....	5	690
Sand, white, hard.....	10	700
Slate, white, loose.....	10	710
Slate, brown, loose.....	40	750
Limestone, white, hard.....	10	760
Slate, white, soft.....	5	765
Slate, black.....	30	795
Limestone shell, hard.....	10	805
Sand, brown, open.....	11	816
Shale.....	8	824
Sand, white.....	15	839
Limestone, gray.....	12	851
Sand, white.....	122	973
Slate, black.....	41	1,014
Limestone shell, hard.....	5	1,019
Slate.....	120	1,139
Sand, white, soft.....	68	1,207
Limestone shell, hard.....	28	1,235
Red rock.....	10	1,245
Slate, black.....	7	1,252
Limestone, white, hard.....	23	1,275
Slate, black.....	25	1,300
Sand, gray.....	12	1,312
Slate, black.....	14	1,326
Total depth.....		1,326
Initial production, 90 bbls.		

*Logs—Continued.**Pet. sec. 30, NE., No. 9.*

Operators—Bridgeport Oil Company.  
 Farm and well—Boyd, No. 11.  
 Elevation—452 feet.

	Thickness Feet	Depth Feet
Mud and slate.....	44	44
Limestone.....	6	50
Slate.....	20	70
Sand.....	20	90
Slate.....	55	145
Limestone.....	15	160
Slate.....	5	165
Sand.....	25	190
Slate.....	10	200
Limestone, hard.....	5	205
Slate.....	45	250
Sand.....	40	290
Slate.....	50	340
Coal.....	5	345
Slate.....	55	400
Limestone shell.....	10	410
Coal.....	5	415
Slate.....	100	515
Sand.....	5	520
Coal.....	3	523
Shale, brown.....	32	555
Sand.....	30	585
Slate.....	15	600
Limestone shell.....	8	608
Sand.....	64	672
Slate.....	28	700
Limestone shell.....	5	705
Slate.....	75	780
Limestone shell.....	5	785
Slate.....	45	830
Stray sand.....	13	843
Slate.....	33	876
Sand.....	4	880
Sand, broken.....	15	895
Oil sand (best oil, 933 to 950 feet).....	57	952
Total depth.....	.....	952

*Pet. sec. 30, SE., No. 50.*

Operators—Curtis and Akin.  
 Farm and well—Fitch, No. 17.  
 Elevation—475 feet.

	Thickness Feet	Depth Feet
First water at.....	.....	120
Red rock at.....	.....	217
Sand at.....	.....	612
Bottom of sand.....	78	690
Slate.....	34	724
Limestone shells.....	4	728
Sand (show of oil, 773 feet).....	124	852
Slate.....	53	905
Sand (oil, 945 feet).....	90	995
Slate.....	65	1,060
Sand.....	45	1,105
Sand and limestone.....	20	1,125
Red rock.....	1,159 to	1,166
Slate.....	4	1,170
Limestone.....	20	1,190
Slate.....	34	1,224
Sand (gas).....	4	1,228
Limestone.....	16	1,244
Slate.....	41	1,285
Red rock.....	15	1,300
Sand (oil, 1,340 feet).....	40	1,340
Slate.....	28	1,368



*Logs—Continued.*

	Thickness Feet	Depth Feet
Sand .....	20	1,388
Slate .....	10	1,398
Sand (little oil, best showing, 1,411 feet) .....	26	1,424
Total depth.....		1,424

*Bport. sec. 32, NW., No. 23.*

Operators—Snowden Bros.  
Farm and well—Perkins, No. 28.  
Elevation—511 feet.

	Thickness Feet	Depth Feet
Clay .....	20	20
Slate .....	80	100
Sand .....	60	160
Slate .....	109	269
Shell .....	6	275
Slate .....	75	350
Slate and shells.....	50	400
Slate .....	100	500
Limestone .....	8	508
Slate .....	72	580
Limestone .....	4	584
Slate .....	132	716
Limestone shells.....	4	720
Slate .....	45	765
Limestone shells.....	6	771
Slate .....	23	794
Sand .....	26	820
Slate .....	17	837
Limestone .....	10	847
Slate .....	8	855
Slate and shells.....	30	885
Sand and limestone (oil, 890 feet) .....	5	890
Sand .....	25	915
Slate .....	60	975
Limestone .....	17	992
Sand .....	21	1,013
Shells .....	11	1,024
Sand .....	66	1,090
Slate .....	6	1,096
Limestone .....	29	1,125
Slate .....	15	1,140
Limestone .....	16	1,156
Slate .....	9	1,163
Limestone .....	14	1,177
Slate .....	33	1,210
Red rock .....	6	1,216
Slate .....	20	1,236
Shells .....	24	1,260
Limestone .....	4	1,264
Slate .....	19	1,283
Limestone (little gas, 1,290 feet) .....	32	1,315
Slate .....	6	1,321
Gas sand (gas, 1,322 feet) .....	9	1,330
Slate .....	15	1,345
Red rock .....	6	1,351
Slate .....	15	1,364
Oil sand (oil, 1,370 to 1,384 feet) .....	22	1,386
Slate .....	12	1,400
Sand .....	12	1,412
Slate .....	50	1,462
Oil sand (oil, 1,468 to 1,482 feet) .....	28	1,490
Slate .....	7	1,497
Limestone .....	8	1,505
Total depth.....		1,505

*Bport. sec. 32, NW., No. 19.*

Operators—Snowden Bros.  
Farm and well—Perkins, No. 22.  
Elevation—488 feet.

*Logs—Continued.*

	Thickness Feet	Depth Feet
Clay .....	23	23
Slate .....	52	75
Sand (water, 135 to 150 feet) .....	75	150
Slate .....	25	175
Sand .....	70	245
Slate .....	4	249
Limestone shells .....	6	255
Slate, red .....	5	260
Slate .....	125	385
Sand .....	10	395
Slate, dark .....	30	425
Slate, light .....	40	465
Slate, dark .....	20	485
Sand shells .....	5	490
Slate, dark .....	180	670
Slate, light .....	23	693
Limestone shells .....	12	705
Slate .....	25	730
Slate and shells, light .....	55	785
Slate and shells, dark .....	43	828
Sand .....	22	850
Slate .....	20	870
Sand .....	30	900
Slate .....	45	945
Sandy limestone .....	40	985
Sand .....	28	1,013
Total depth .....		1,013

*Bport. sec. 32, SW., No. 5.*

Operators—Snowden Bros.  
Farm and well—Perkins, No. 17.  
Elevation—479 feet.

	Thickness Feet	Depth Feet
Clay .....	20	20
Slate .....	60	80
Sand .....	70	150
Slate .....	15	165
Sand .....	89	254
Limestone .....	6	260
Slate .....	5	265
Red rock .....	5	270
Slate .....	175	445
Sandy limestone .....	10	455
Slate .....	20	475
Limestone .....	5	480
Slate .....	10	490
Limestone .....	3	493
Coal .....	3	496
Limestone .....	7	503
Slate .....	87	590
Sandy shells .....	5	595
Slate .....	95	690
Sandy shells .....	10	700
Sand .....	10	710
Slate .....	32	742
Sand .....	6	748
Slate and shells .....	37	785
Sand .....	15	800
Slate and shells .....	45	845
Limestone .....	5	850
Sand .....	7	857
Slate .....	18	875
Sand .....	15	890
Slate .....	14	904
Sand and slate .....	6	910
Slate .....	10	920
Sand (oil, 925 to 935 feet) .....	42	962
Slate .....	13	975
Limestone, gritty .....	45	1,020
Sand (oil, 1,045 feet; water, 1,050 feet) .....	85	1,105
Slate .....	3	1,108
Sand .....	28	1,136

*Logs—Concluded.*

	Thickness Feet	Depth Feet
Slate .....	2	1,138
Sand .....	22	1,160
Slate .....	24	1,184
Limestone .....	3	1,187
Red slate .....	6	1,193
Slate and shells .....	27	1,220
Limestone .....	25	1,245
Slate and shells .....	13	1,258
Red slate .....	4	1,262
Sand (gas, 1,267 feet) .....	28	1,290
Limestone .....	15	1,305
Red slate .....	25	1,330
Slate .....	20	1,350
Sand (oil, 1,351 feet) .....	45	1,395
Slate .....	21	1,416
Sand and shells .....	14	1,430
Slate and shells .....	20	1,450
Sand (oil, 1,461 feet) .....	10	1,460
Slate .....	15	1,475
Sand (gas, 1,490 feet) .....	25	1,500
Slate and shells .....	40	1,540
Limestone and slate .....	30	1,570
Sand (gas, 1,580 feet) .....	25	1,595
Limestone, gritty .....	45	1,640
Limestone and sand (show of oil, 1,695 feet) .....	55	1,690
Sandy limestone .....	24	1,714
Total depth .....		1,714

*Bport. sec. 32, SW., No. 13.*

Operators—Snowden Bros.

Farm and well—Perkins, No. 16.

Elevation—494 feet.

	Thickness Feet	Depth Feet
Sand (water) .....	130	125 to 255
Limestone shell, very hard .....	10	270 to 280
Red rock .....	7	285 to 292
Coal .....	6	430 to 436
Coal .....	5	500 to 505
Limestone shell .....	7	710 to 717
Sand .....	5	720 to 725
Sand (show of oil, 805 feet) .....	26	800 to 826
Oil sand (water, 880 feet) .....	75	840 to 915
Sand, hole full of water .....	96	1,060 to 1,150
Slate and shells .....	9	1,156 to 1,165
Limestone .....	15	1,180
Slate .....	30	1,210
Red slate .....	5	1,215
Slate .....	20	1,235
Limestone .....	8	1,243
Slate .....	4	1,247
Limestone .....	11	1,258
Slate .....	14	1,272
Red slate .....	6	1,278
Slate .....	2	1,280
Sand (gas, 1,285 feet) .....	20	1,300
Slate .....	5	1,305
Limestone .....	6	1,311
Slate .....	33	1,344
Red slate .....	6	1,350
Slate .....	6	1,356
Sand (oil, 1,378 and 1,398 feet) .....	54	1,410
Slate .....	33	1,443
Sand (pay, 1,445 to 1,450 feet) .....	17	1,460
Slate .....	19	1,479
Sand .....	14	1,493
Slate .....	10	1,503
Limestone .....	5	1,508
Total depth .....		1,508
Production, 100 bbls. ....		

## CROSS-SECTION B-B.

The B-B cross-section, Pl. XIII, shows the structure of the northern end of the field. It crosses the field diagonally between Pet. sec. 15, NE., No. 1, and Pet. sec. 30, SW., No. 1. The sands above the "Gas" sand were not correlated because of their irregularity. The lower sands show the major arch of this region to be about 250 feet high and three miles wide. The section is made up of the following records.

## LOGS.

The records of the following wells are found in the tables of well data:

*List of Wells in Lawrence County Furnishing Data for Cross-Section B-B.*

Township.	Section.	Quarter-section.	Well number.
Petty.....	2.....	SE.	2
	2.....	SE.	7
	2.....	SE.	5
	2.....	NE.	6
	36.....	SW.	13
	36.....	SW.	1
	36.....	NE.	7
	36.....	NE.	6
	30.....	SW.	1

*Pet. sec. 15, NE., No. 1.*

Presented in the stratigraphic discussion, page 80.

*Pet. sec. 2, SW., No. 6.*

Operators—Snowden Bros.  
Farm and well—Armitage, No. 2.  
Elevation—445 feet.

	Thickness Feet	Depth Feet
Soil, yellow.....	33	33
Slate, dark.....	162	195
Sand, light.....	15	210
Slate, dark.....	35	245
Limestone, light.....	8	253
Slate, white, soft.....	25	278
Limestone, white.....	15	293
Slate, white, soft.....	17	310
Sand, light (7 ballers of water per hour, 345 feet).....	35	345
Slate and limestone shells, light, hard.....	11	356
Red rock.....	9	365
Slate, white.....	20	385
Sand, white.....	20	405
Slate, black, soft.....	75	480
Sand, light.....	15	495
Slate, light.....	25	520
Limestone, light.....	15	535
Slate and shells.....	30	565
Limestone, light, hard.....	12	577
Slate, black, soft.....	13	590
Limestone, white, medium.....	15	605
Slate, dark, soft.....	55	660
Sand, light.....	40	700
Slate, light, soft.....	100	800
Limestone, light, hard.....	7	807
Slate, dark, soft.....	12	819

*Logs—Continued.*

	Thickness Feet	Depth Feet
Red rock.....	10	829
Limestone, white, hard.....	15	844
Sand, white.....	25	869
Slate, dark, soft.....	40	909
Limestone, white, hard.....	15	924
Sand, white.....	12	936
Slate, dark, soft.....	15	951
Sand, white.....	13	964
Sandy limestone, white.....	30	994
Slate and shells.....	146	1,140
Sand (hole full of water, 1,140 feet).....	30	1,170
Slate, black.....	5	1,175
Limestone shells and sand.....	20	1,195
Slate, dark, soft.....	45	1,240
Limestone shells, light.....	3	1,243
Slate and shells, light.....	42	1,285
Sandy limestone.....	15	1,300
Slate and shells.....	15	1,315
Limestone, light, hard.....	5	1,320
Slate and shells.....	115	1,435
Limestone, light, hard.....	5	1,440
Slate.....	18	1,458
Limestone, light, hard.....	22	1,480
Slate, white, soft.....	15	1,495
Red rock.....	10	1,505
Sand, light (show of oil, 1,505 feet).....	6	1,511
Slate and shells.....	24	1,535
Sand (oil, 1,555 feet).....	30	1,565
Slate.....	12	1,577
Limestone and sand (oil, 1,578 to 1,583 feet).....	20	1,597
Slate.....	13	1,610
Total depth.....		1,610

*Pet. sec. 2, SE., No. 10.*

Presented in the stratigraphic discussion, page 81.

*Pet. sec. 1, NW., No. 3.*

Presented in the discussion of the A-A cross-section, page 117.

*Pet. sec. 36, SW., No. 10.*

Presented in the discussion of the A-A cross-section, page 117.

*Pet. sec. 36, NE., No. 10.*

Operators—Snowden Bros.

Farm and well—Nuttall, No. 5.

Elevation—435 feet.

	Thickness Feet	Depth Feet
Gravel, yellow, soft.....	180	180
Slate, black, soft.....	80	260
Limestone, white, hard (water).....	40	300
Sand, white, hard (12 ballers water, 305 feet).....	5	305
Red rock.....	5	310
Slate, white, soft.....	60	370
Limestone, white, hard.....	85	455
Sand, white, soft (water).....	45	500
Slate, white, soft.....	40	540
Slate, black, soft.....	25	565
Slate and limestone shells.....	70	635
Slate, black, soft.....	90	720
Sand, white, soft (water).....	25	750
Slate, white.....	35	785
Sand (hole full of water, 1,000 feet).....	215	1,000
Limestone, white, hard.....	95	1,095
Sand, white, hard.....	65	1,160



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*Logs—Concluded.*

	Thickness Feet	Depth Feet
Sand, slate, and shells, dark.....	50	1,210
Slate, white, hard.....	50	1,260
Sand, white, hard.....	35	1,295
Limestone, white, hard.....	15	1,310
Red rock.....	5	1,315
Limestone, white, hard.....	100	1,415
Slate, black, soft.....	19	1,435
Oil sand, gray.....	9	1,444
Slate, black.....	11	1,455
Sand, white (4 ballers of water, 1,465 feet).....	10	1,465
Slate.....	25	1,490
Limestone, white, soft.....	60	1,550
Limestone, yellow, hard (oil, 1,564 feet).....	15	1,565
Sandy limestone, white, soft.....	4	1,569
Sand, green oil, hard (first showing, 1,612 feet).....	53	1,622
Slate, black, soft.....	15	1,637
Total depth.....		1,637

*CROSS-SECTION C-C.*

The C-C cross-section, Pl. XIV, is chosen along a line crossing the crest of the large dome in section 30, Petty township. This cross-section presents the extreme structure of the Lawrence county field. It shows the arch to be about 400 feet high and three miles wide. Correlation lines of five sands are drawn over the dome and reveal some irregularities of interval, particularly between the Kirkwood and Tracey sands and the Buchanan and "Gas" sands.

The section is made up of the following records:

*LOGS.*

The records of the following wells are in the tables of well data:

*List of Wells Affording Data for Cross-Section C-C.*

Township.	Section.	Quarter-section.	Well number.
Bridgeport.....	36.....	NE.	7
	31.....	NW.	5
	31.....	NW.	4
Petty.....	30.....	SW.	13
	30.....	SW.	12
	30.....	SE.	18
	30.....	SE.	15
	30.....	SE.	64
	30.....	SE.	63
	30.....	SE.	52
	30.....	SE.	53
	29.....	NW.	30, 31
	29.....	NW.	29
	29.....	NW.	2
	20.....	SE.	3

The remaining detailed logs of the section are presented as follows:

*Bport. sec. 36, SE., No. 8.*

Operators—Bridgeport Oil Company.  
Farm and well—Stoltz, No. 13.  
Elevation—523 feet.



*Logs—Continued.*

	Thickness Feet	Depth Feet
Slate and shells.....	65	65
Limestone.....	20	85
Slate.....	25	110
Limestone.....	10	120
Sand.....	15	135
Slate.....	105	240
Sand (water).....	40	280
Sand.....	20	300
Slate.....	40	340
Coal.....	5	345
Limestone.....	35	380
Big limestone shell.....	40	420
Red rock.....	8	428
Slate.....	13	441
Limestone (?) (probably slate and shells).....	139	580
Slate.....	20	600
Limestone (?) (probably slate and shells).....	170	770
Sand (salt water).....	25	795
Black slate.....	55	850
Sand.....	40	890
Sand (water).....	45	935
Slate.....	12	947
Coal.....	2	949
Slate.....	10	959
Limestone.....	5	964
Slate.....	3	967
Sand.....	8	975
Slate.....	45	1,020
Sand.....	15	1,035
Slate.....	20	1,055
Limestone.....	3	1,058
Slate.....	40	1,098
Limestone.....	2	1,100
Slate.....	25	1,125
Limestone.....	21	1,146
Salt sand.....	99	1,245
Slate.....	15	1,260
Sand (salt water).....	60	1,320
Slate.....	27	1,347
Limestone.....	37	1,370
Slate.....	20	1,390
Sand.....	10	1,400
Slate.....	15	1,415
Limestone.....	20	1,435
Slate.....	10	1,445
Sand (water).....	20	1,465
Slate.....	8	1,473
Limestone.....	5	1,478
Slate.....	17	1,495
Limestone.....	10	1,505
Slate.....	17	1,522
Red rock.....	13	1,535
Slate.....	5	1,540
Limestone.....	35	1,575
Slate.....	20	1,595
Sand (5 ballers of water per hour).....	10	1,605
Limestone.....	25	1,630
Slate.....	43	1,673
Limestone.....	2	1,675
Slate.....	4	1,679
Sand (oil, 1,689 feet).....	21	1,700
Sand, broken.....	10	1,710
Slate.....	5	1,715
Sand, broken.....	12	1,727
Slate.....	6	1,733
Total depth.....		1,733

*Bport. sec. 36. SE., No. 2.*

Operators—Snowden Bros.

Farm and well—E. Fyffe, No. 9.

Elevation—506 feet.

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*Logs—Continued.*

	Thickness Feet	Depth Feet
Soll .....	14	14
Slate .....	90	104
Limestone shell .....	10	114
Slate .....	111	225
Sand (water, 240 to 300 feet) .....	85	310
Slate .....	55	365
Sand .....	40	405
Slate .....	10	415
Limestone, hard .....	12	427
Red slate .....	10	437
Sand, white, hard .....	15	452
Limestone, white, hard .....	7	459
Slate, dark, soft .....	192	651
Sand, white, hard .....	11	662
Slate .....	176	838
Limestone, white, hard .....	2	840
Slate .....	18	858
Limestone .....	7	865
Slate .....	25	890
Sand (water, 905 feet) .....	50	940
Slate .....	185	1,125
Sand (water, 1,160 feet) .....	135	1,260
Slate .....	25	1,285
Sand (water, 1,325 feet) .....	40	1,325
Slate .....	65	1,390
Sand (water, 1,435 feet) .....	60	1,450
Limestone .....	10	1,460
Slate, dark .....	43	1,503
Red rock, cave .....	7	1,510
Slate, dark, soft .....	5	1,515
Slate, dark, hard .....	17	1,532
Sand, white, hard .....	7	1,539
Slate, white, soft .....	15	1,554
Shale .....	19	1,573
Sand (water, 1,589½ feet) .....	16	1,589
Limestone .....	20	1,609
Slate, black .....	20	1,629
Slate, white .....	9	1,638
Red slate .....	2	1,640
Shell, hard .....	2	1,642
Sand, white (oil, 1,651 feet) .....	57	1,699
Slate, dark .....	18½	1,717½
Total depth .....		1,717½
Initial production, 150 bbls. ....		

*Bport. sec. 31, NW., No. 14.*

Operators—Central Refining Company.  
 Farm and well—Perry King, No. 5.  
 Elevation—487 feet.

	Thickness Feet	Depth Feet
Clay .....	70	70
Limestone .....	6	76
Slate .....	20	96
Limestone .....	14	110
Slate .....	35	145
Limestone .....	5	150
Sand .....	80	230
Limestone .....	30	260
Sand .....	45	305
Slate .....	10	315
Sand .....	10	325
Red rock .....	6	331
Limestone .....	20	351
Slate .....	174	625
Sand .....	12	537
Slate .....	158	695
Sand .....	30	725
Slate .....	55	780
Limestone .....	5	785
Sand .....	80	865
Slate and shells .....	115	980
Sand (show of oil, 995 feet) .....	60	1,040

*Logs—Continued.*

	Thickness Feet	Depth Feet
Slate .....	12	1,052
Sand .....	83	1,135
Slate .....	10	1,145
Sand .....	145	1,290
Slate .....	15	1,305
Sand .....	35	1,340
Slate .....	10	1,350
Red rock .....	12	1,362
Limestone .....	53	1,415
Red rock .....	6	1,421
Sand .....	15	1,436
Limestone .....	29	1,465
Slate .....	14	1,479
Red rock .....	15	1,494
Sand (oil) .....	30	1,524
Total depth .....		1,524

*Pet. sec. 30, SE., No. 26.*

Operators—Bridgeport Oil Company.

Farm and well—Willey, No. 11.

Elevation—507 feet.

	Thickness Feet	Depth Feet
Soil .....	6	6
Quicksand .....	9	15
Slate .....	85	100
Sand .....	25	125
Limestone, hard .....	7	132
Sand .....	18	150
Slate and limestone .....	85	235
Sand .....	5	240
Coal .....	3	243
Slate and limestone .....	12	255
Red rock .....	20	275
Limestone and slate .....	85	360
Sand .....	30	390
Slate and limestone .....	84	474
Coal .....	2	476
Slate and limestone .....	134	610
Sand .....	28	638
Slate and limestone .....	67	705
Salt sand .....	45	750
Slate and limestone .....	45	795
Sand (oil, 820 feet) .....	35	830
Limestone .....	10	840
Slate .....	15	855
Limestone .....	103	958
Slate .....	5	963
Sand, broken .....	26	989
Sand (show of oil, 1,000 feet) .....	16	1,005
Slate .....	10	1,015
Sand .....	25	1,040
Slate .....	10	1,050
Limestone .....	15	1,065
Sand .....	40	1,105
Limestone .....	10	1,115
Salt sand .....	57	1,172
Limestone .....	6	1,178
Slate .....	21	1,199
Sand .....	9	1,208
Slate .....	7	1,215
Red rock .....	10	1,225
Limestone .....	5	1,230
Slate .....	20	1,250
Limestone .....	15	1,265
Slate .....	2	1,267
Limestone .....	8	1,275
Slate .....	15	1,290
Sand (gas) .....	10	1,300
Limestone .....	18	1,318
Slate .....	36	1,354
Sand (oil, 1,358 feet) .....	8	1,362
Slate .....		1,362
Total depth .....		1,362

*Logs—Continued.**Pet. sec. 29, NW., No. 39.*

Operators—Silurian Oil Company.  
 Farm and well—J. D. Bowers, No. 7.  
 Elevation—443 feet.

	Thickness Feet	Depth Feet
Sand (oil, 920 feet).....	75	910 to 985
Sand (salt water).....	40	1,060 to 1,100
Slate .....	38	1,138
Red rock .....	4	1,142
Slate .....	32	1,174
Limestone .....	12	1,186
Slate .....	39	1,225
Limestone .....	15	1,240
Slate .....	25	1,265
Red rock.....	5	1,270 to 1,280
Slate .....	8	1,288
Sand .....	32	1,320
Slate .....	35	1,355
Limestone .....	15	1,370
Slate .....	50	1,420
Sand (gas, 1,427 feet).....	15	1,425 to 1,440
Total depth.....		1,440
Gas well, 520 pounds rock pressure.		

*Pet. sec. 29, NW., No. 8.*

Operators—Bridgeport Oil Company.  
 Farm and well—Eshelman, No. 16.  
 Elevation—438 feet.

	Thickness Feet	Depth Feet
Soil .....	25	25
Sand .....	47	72
Slate .....	53	125
Sand .....	20	145
Slate .....	10	155
Sand .....	10	165
Slate .....	5	170
Limestone .....	5	175
Slate .....	60	235
Limestone .....	10	245
Slate .....	15	260
Sand .....	40	300
Limestone .....	5	305
Slate .....	45	350
Sand .....	15	365
Slate .....	42	407
Coal .....	3	410
Slate .....	90	500
Sand .....	20	520
Slate .....	55	575
Limestone, hard.....	5	580
Slate .....	5	585
Sand, broken.....	81	666
Slate, soft.....	24	690
Limestone .....	10	700
Slate .....	60	760
Limestone .....	15	775
Sandy limestone.....	27	802
Slate, black.....	58	860
Sand (oil).....	10	870
Broken sand.....	52	922
Sand (some oil, 925 feet), white.....	58	980
Slate .....	7	987
Limestone .....	11	998
Slate .....	7	1,005
Limestone, hard.....	10	1,015
Slate .....	10	1,025
Limestone .....	10	1,035

*Logs—Concluded.*

	Thickness Feet	Depth Feet
Slate .....	15	1,050
Sand (salt water) .....	55	1,105
Limestone .....	5	1,110
Slate .....	6	1,116
Sandy limestone .....	13	1,129
Limestone .....	15	1,144
Red rock .....	2	1,146
Slate .....	34	1,180
Limestone .....	18	1,198
Slate .....	12	1,210
Red rock .....	13	1,223
Slate .....	4	1,227
Sand (gas) .....	13	1,240
Limestone, hard .....	10	1,250
Slate .....	23	1,273
Red rock .....	12	1,285
Sand (oil pay, 1,298 to 1,330 feet) .....	33	1,318
Slate .....	25	1,343
Limestone .....	14	1,357
Slate .....	33	1,390
Limestone .....	6	1,396
Total depth .....		1,426

*Pet. sec. 20, SE., No. 7.*

Operators—E. N. Gillespie.  
Farm and well—Smith, No. 24.  
Elevation—435 feet.

	Thickness Feet	Depth Feet
Sand (salt water) .....	25	725
Slate and shells .....	251	976
Sand .....	5	981
Sand (water) .....	94	1,075
Slate .....	95	1,170
Sand, salt .....	86	1,256
Slate and shells .....	41	1,297
Red rock .....	13	1,310
Slate .....	10	1,320
Limestone .....	30	1,350
Slate .....	35	1,385
Shells and slate .....	52	1,437
Sand, broken .....	27	1,465
Sand (oil) .....	10	1,475
Slate .....	8	1,483
Sand .....	56	1,539
Limestone .....	5	1,544
Slate .....	17	1,561
Total depth .....		1,561
Initial production, 80 bbls. ....		

**CROSS-SECTION D-D.**

The D-D cross-section, Pl. XV, is drawn across the southern end of the field. It shows the flattened nature of the LaSalle anticline in this region and the small terrace on the western limb of the fold. The "Gas" sand is not noted in this portion of the field. The remaining producing sands are essentially flat but locally irregular. The section is made up of the following records:

**LOGS.**

The records of the following wells are in the tables of well data:

## Logs—Continued.

## List of Wells Affording Data for Cross-Section D-D.

Township.	Section.	Quarter-section.	Well number.
Bridgeport.....	20.....	NE.	2
Dennison.....	21.....	SW.	2
	21.....	SW.	3
	21.....	NW.	6
	21.....	NE.	9
	21.....	NE.	10
	22.....	NW.	12, 13
Lawrence.....	15.....	SW.	17
	15.....	SE.	1
	15.....	SE.	9
	15.....	SE.	12
	14.....	NW.	7
	14.....	NW.	3
	14.....	NE.	17
	14.....	NE.	1
	12.....	SW.	8

The remaining detailed logs of the section are presented below and elsewhere in this report:

## Bport. sec. 30, NE., No. 2.

Operators—Snowden Bros.

Farm and well—McOrr, No. 1.

Elevation—503 feet.

	Thickness Feet	Depth Feet
Soil and slate.....	80	80
Sand, white (water, 80 feet).....	35	125
Slate, white, soft.....	105	230
Sand.....	30	260
Slate.....	10	270
Limestone.....	4	274
Slate.....	156	430
Limestone.....	8	438
Slate, red, soft.....	7	445
Slate, white, soft.....	15	460
Sand.....	15	475
Slate.....	125	600
Coal.....	4	604
Slate.....	71	675
Sand, white, hard.....	5	680
Slate.....	90	770
Limestone.....	15	785
Slate, white, soft.....	83	868
Sand, white, soft (hole full of water, 916 feet).....	48	916
Slate, dark, soft.....	25	941
Limestone, white, hard.....	9	950
Slate.....	20	970
Limestone.....	8	978
Slate.....	19	997
Sand.....	3	1,000
Slate.....	40	1,040
Sand, white, soft (water, 1,045 feet).....	15	1,055
Slate.....	20	1,075
Limestone, white, very hard.....	3	1,078
Slate, dark, soft.....	42	1,120
Sand, white, soft (hole full of water, 1,170 feet).....	210	1,330
Slate, dark.....	53	1,383
Sand, light, hard.....	9	1,392
Slate, dark, soft.....	23	1,415
Sand, white (water, 1,420 feet).....	35	1,450
Slate, dark, soft.....	70	1,520
Sand (hole full of water, 1,522 feet).....	25	1,545
Slate.....	49	1,594
Sand.....	59	1,653
Limestone, white, hard.....	15	1,668



*Logs—Continued.*

	Thickness Feet	Depth Feet
Slate, dark, loose.....	19	1,687
Sand, dark, soft (8 ballers of water, 1,708 feet).....	21	1,708
Slate.....	5	1,713
Limestone, white, hard.....	2	1,715
Red rock.....	10	1,725
Slate, light.....	13	1,738
Limestone.....	2	1,740
Slate, dark, very soft.....	14	1,754
Limestone.....	10	1,764
Slate, dark, very soft.....	26	1,790
Sand, light, hard.....	10	1,800
Slate.....	8	1,808
Limestone.....	20	1,828
Slate.....	37	1,865
Sand (4 ballers of water, 1,880 feet).....	71	1,936
Slate.....	22	1,958
Sand (pay, 1,962 to 1,972 feet).....	14	1,972
Total depth.....		1,972

*Bport. sec. 29, NW., No. 2.*

Operators—Snowden Bros.  
Farm and well—H. K. Seed, No. 2.  
Elevation—490 feet.

	Thickness Feet	Depth Feet
Soil.....	18	18
Sand, slate and shells.....	332	350
Sand, white, soft.....	50	400
Slate and shells.....	300	700
Slate, white.....	50	750
Slate, dark.....	81	831
Sand, white (salt water, 851 feet).....	129	960
Slate, sand, and shells (salt water, 1,165 feet).....	205	1,165
Sand, white.....	105	1,270
Slate, dark.....	25	1,295
Sand.....	25	1,320
Limestone, white.....	25	1,345
Slate, dark.....	80	1,425
Sand, white.....	187	1,612
Slate.....	8	1,620
Sand, white (salt water, 1,650 feet).....	30	1,650
Red slate.....	25	1,675
Limestone shells.....	55	1,730
Sand.....	20	1,750
Slate and shells.....	35	1,785
Red rock.....	6	1,791
Slate.....	11	1,802
Sand, white.....	26	1,828
Slate.....	17	1,845
Sand, white (salt water, 1,860 feet).....	20	1,865
Slate.....	14	1,879
Shells, hard.....	2	1,881
Sand, brown.....	17	1,898
Total depth.....		1,900
Initial production, 125 bbls.		

*Bport. sec. 29, NW., No. 1.*

Operators—Snowden Bros.  
Farm and well—H. K. Seed, No. 1.  
Elevation—476 feet.

	Thickness Feet	Depth Feet
Red rock.....	5	415
Sand, dry.....	14	610
Slate.....	150	760
Sand.....	15	775



Slate,  
Sand,  
Slate  
Limes  
Red 1  
Slate,  
Limes  
Slate,  
Limes  
Slate,  
Sand,  
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Limes  
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Slate  
Red 1  
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Sand,  
Slate  
Sand,  
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Shells  
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Op.  
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Ele

Red .  
Sand,  
Slate  
Sand

*Logs—Continued.*

	Thickness Feet	Depth Feet
Slate .....	55	830
Sand (salt water, 840 and 880 feet) .....	40	870
Slate .....	5	875 to 880
Sand (water) .....	40	920
Slate .....	10	930
Sand (water) .....	20	950
Slate .....	95	1,045
Sand (water) .....	230	1,275
Limestone .....	25	1,300
Slate .....	150	1,450
Sand (water, 1,460 feet) .....	40	1,490
Slate .....	20	1,510
Limestone .....	20	1,530
Sand .....	5	1,532 to 1,537
Slate .....	163	1,700
Red rock .....	5	1,705
Slate .....	95	1,800
Red rock .....	15	1,815
Sand (water, 1,830 feet) .....	15	1,830
Slate .....	23	1,858
Limestone .....	2	1,860
Slate .....	2	1,862
Oil sand .....	12	1,874
Slate .....	11	1,885
Total depth .....		1,885
Initial production, 40 bbls. ....		

*Law sec. 11, SE., No. 6.*

Presented in the stratigraphic discussion, page 67.

*Law. sec. 12, SW., No. 7.*

Presented in the stratigraphic discussion, page 68.

*Law. sec. 12, SW., No. 4.*

Operators—Bridgeport Oil Company.

Farm and well—Henry, No. 1.

Elevation—440 feet.

	Thickness Feet	Depth Feet
Soil, etc. ....	.....	90
Sand (fresh water) .....	17	107
Slate .....	38	145
Limestone .....	10	155
Slate .....	10	165
Limestone shells .....	100	265
Red rock .....	13	278
Limestone, slate, and shells .....	72	350
Slate, pencil cave .....	70	420
Limestone and slate .....	190	610
Sand (hole full of salt water, 700 feet) .....	90	700
Slate and shells .....	205	905
Sand (salt water, 910 feet) .....	15	920
Slate .....	60	980
Sand (salt water, 1,000 and 1,030 feet) .....	85	1,065
Slate, black .....	115	1,180
Slate and shells .....	110	1,290
Limestone .....	10	1,300
Sand (water, 1,300 feet) .....	16	1,316
Slate .....	6	1,322
Sand .....	8	1,330
Limestone .....	55	1,385
Slate and shells .....	44	1,429
Limestone .....	30	1,459
Slate .....	31	1,490
Red rock, cave .....	10	1,500
Slate .....	5	1,505
Lime .....	16	1,521
Slate .....	23	1,544

*Logs—Concluded.*

	Thickness Feet	Depth Feet
Red rock.....	5	1,549
Sand (oil, 1,556 and 1,568 feet).....	31	1,580
Slate.....	10	1,590
Sand (show of oil).....	5	1,595
Slate.....	5	1,600
Sand (oil pay).....	10	1,610
Limestone shell.....	90	1,700
Red rock, cave.....	10	1,710
Limestone.....	77	1,787
Sand.....	4	1,791
Limestone.....	91	1,882
McClosky sand.....	6	1,888
Total depth.....		1,889

*Low. sec. 12, SE., No. 2.*

Operators—Bridgeport Oil Company.  
Farm and well—Tracey Heirs, No. 1.  
Elevation—455 feet.

	Thickness Feet	Depth Feet
Sand (water at 12 feet).....	85	85
Sand and gravel.....	15	100
Slate.....	10	110
Sand.....	10	120
Limestone.....	30	150
Sand.....	5	155
Limestone.....	85	230
Slate.....	12	242
Limestone.....	48	290
Slate.....	10	300
Limestone.....	15	315
Slate.....	25	340
Limestone.....	12	352
Slate.....	48	400
Limestone.....	10	410
Slate.....	50	460
Limestone.....	15	475
Slate.....	102	578
Limestone.....	5	583
Slate.....	17	600
Sand (water).....	30	630
Slate.....	50	680
Limestone.....	30	710
Slate.....	13	723
Sand.....	12	735
Slate.....	80	815
Limestone.....	5	820
Slate.....	27	847
Sand.....	63	1,010
Slate.....	31	1,041
Sand (water).....	29	1,070
Slate.....	15	1,085
Sand.....	40	1,125
Slate.....	68	1,193
Limestone.....	15	1,208
Slate.....	57	1,265
Sand (show of oil, 1,285 feet).....	47	1,312
Slate.....	48	1,360
Sand.....	45	1,405
Slate.....	20	1,425
Limestone.....	25	1,450
Slate.....	30	1,480
Red rock.....	10	1,490
Limestone.....	10	1,500
Sand.....	10	1,510
Slate.....	55	1,565
Sand (water, 1,570 feet).....	20	1,585
Slate.....	5	1,590
Sand (show of oil, 1,595 feet. Water, 1,600 feet).....	25	1,615
Slate.....	112	1,727
Limestone.....	45	1,772
Sand.....	14	1,786
Limestone.....	297	2,083

Well plugged and abandoned.

## RELATIONS OF STRUCTURE TO OIL AND GAS.

## OIL.

The oil sands of Lawrence county have proven the richest in Illinois. They show remarkable stability in their yield and have promise of long life. The shallower sands have declined rapidly, but the Kirkwood, Tracey and McClosky sands are still prolific. Of the 2,810 wells mapped in this county, but 156, or 5½ per cent were dry. There are 890 wells mapped in Petty township, 860 in Bridgeport, 349 in Lawrence, and 711 in Dennison. The range of initial production is between one and 2,400 barrels per day. The Kirkwood sand has shown the best general production while the McClosky sand yielded the greatest number of gushers. The Bridgeport sand is the second best general producing sand. It has declined rapidly, however, and is giving way to the development of steadier sands beneath. There are 1,835 of the 2,654 producing wells, or about 70 per cent, that furnish information of the initial yield. This is sufficient to indicate the nature of distribution of oil in this field with respect to structural conditions. The following table shows the number of wells that furnished data of initial productions for each sand. They are listed by townships, sands, and extent of yield. The gas and dry wells are also given:

*Table Showing Initial Productions of Various Sands in the Lawrence County Field.*

Lawrence county.		Number of wells classified according to their initial production.							
Township.	Producing sand.	0-10 bbls.	10-50 bbls.	50-100 bbls.	100-200 bbls.	200-500 bbls.	Over 500 bbls.	Gas.	Dry.
Petty.....	Bridgeport.....	4	27	19	21	15	.....	1	44
	Buchanan.....	.....	.....	.....	.....	.....	.....	.....	
	"Gas".....	.....	13	6	3	.....	.....	3	
	Kirkwood.....	4	71	87	63	10	4	8	
	Tracey.....	2	20	15	7	1	.....	22	
Bridgeport...	McClosky.....	8	52	35	23	4	6	5	22
	Bridgeport.....	6	48	100	47	3	3	.....	
	Buchanan.....	.....	4	8	30	38	8	.....	
	"Gas".....	.....	7	2	3	1	.....	3	
	Kirkwood.....	4	60	74	47	19	4	.....	
Lawrence....	Tracey.....	.....	1	1	1	.....	.....	1	25
	McClosky.....	.....	5	13	3	6	4	8	
	Bridgeport.....	.....	1	1	4	.....	.....	.....	
	Buchanan.....	.....	7	11	51	22	1	.....	
	"Gas".....	.....	.....	.....	.....	.....	.....	.....	
Dennison....	Kirkwood.....	3	44	27	21	6	.....	.....	65
	Tracey.....	.....	8	1	.....	.....	.....	.....	
	McClosky.....	1	2	4	4	5	4	.....	
	Shallow.....	.....	4	.....	.....	.....	.....	.....	
	Bridgeport.....	5	50	51	54	9	.....	9	
Total for field.	Buchanan.....	1	1	3	22	10	.....	.....	156
	"Gas".....	.....	20	8	6	1	.....	6	
	Kirkwood.....	3	240	264	169	46	8	9	
	Tracey.....	5	34	21	10	2	.....	24	
	McClosky.....	9	63	57	37	21	30	13	

## PETTY TOWNSHIP.

The oil in sections 25, 26, 35 and 36, at the extreme northern end of the county, comes from the McClosky and Tracey sands. The initial yield per well does not exceed 200 barrels. The oil in both sands is found under a small dome on the top of the fold, which is separated from the elongated dome farther south by a narrow barren depression across the field. The McClosky sand is highly productive along a narrow strip north and south through the center of the field, especially in sections 18 and 30. The largest initial productions of Lawrence county were found in this sand in section 18. The oil is crowded into a small dome, similar in height, extent, and altitude to the arch in the extreme northern end of the field. The same sand is productive at a like altitude on the western flank of the dome-like structure in section 30. The productive strip is very narrow through this section but becomes broader in sections 31 and 6, Bridgeport township.

The Kirkwood sand shows the greatest number of producing wells in the remaining sections of the field, especially along the eastern dip of the anticline in sections 20 and 29. The wells in this region reported excellent initial productions. The Kirkwood sand is also highly productive in section 30, between 30 and 80 feet lower than the crest on the west side of the dome.

The "Gas" sand primarily produces gas but is productive of oil in the following wells:

*List of Wells Producing Oil From the 'Gas' Sand; Lawrence County.*

Township.	Section.	Quarter-section.	Number of well.	Initial production in bbls.
Petty.....	1.....	NE.	9	20
	7.....	NW.	9	40
	7.....	SW.	1	45
	7.....	SW.	4	35
	7.....	SW.	17	15
	12.....	NE.	2	65
	12.....	SW.	9	75
	12.....	SE.	6	135
	12.....	SE.	7	110
	13.....	SE.	2	75
	17.....	SW.	5	35
	17.....	SW.	6	25
	20.....	NW.	1	25
	24.....	NE.	2	40
	24.....	SE.	7	20
Bridgeport.....	5.....	NW.	9	170
	6.....	NE.	19	70
	6.....	NE.	22	30
	6.....	NE.	23	45
	8.....	NE.	9	60
	8.....	NW.	26	50
	8.....	NW.	27	30
	31.....	NE.	55	100
	31.....	NE.	56	100
	31.....	NE.	59	250
	31.....	SE.	4	50
	32.....	NE.	5	105
	32.....	NE.	18	20
	32.....	SW.	6	25

The Buchanan sand appears unproductive in Petty township. It is not correlated in this region because of possible confusion with the Bridgeport lenses. In fact, it may be possible that some of the lower

productive lenses of the Bridgeport sand are mistaken for the Buchanan.

The Bridgeport sand is especially productive in sections 18, 19, 20, 29 and 30. The initial yields are between 30 and 300 barrels.

#### BRIDGEPORT TOWNSHIP.

The Bridgeport, Buchanan, and Kirkwood sands are the most productive in Bridgeport township. The Bridgeport and Kirkwood sands have the largest number of average size wells, while the Buchanan sand has the larger number of gushers.

The Bridgeport sand is especially productive in sections 32, 5 and 8, which lie structurally along the southern slope of the double plunging anticline. The average yield in these sections is between 50 and 150 barrels.

The Buchanan sand has its type area in section 17. The wells are very rich in their initial yield, varying between 100 and over 500 barrels. There are a number of gushers recorded from this locality. The oil is crowded into a small dome on the crest of the anticline; the structure is discussed on page 107.

The Kirkwood sand yields the best wells in sections 6, 31 and 32, which lie along the western flank of the arch and the south-western slope of the largest dome.

The McClosky sand is productive in sections 6 and 31. This is an extension of the narrow productive area through Petty township. Several gushers are reported from section 31.

#### LAWRENCE TOWNSHIP.

The Kirkwood and Buchanan sands are the most productive in Lawrence township. This locality is the type area for the Kirkwood and a portion of the Buchanan sands.

The Buchanan sand is especially productive in sections 15 and 16. The average yield is 100 to 200 barrels. Several large wells are reported from this area. The oil is crowded into a dome similar in height and altitude to the one in section 17, Bridgeport township.

The type locality for the Kirkwood sand lies in sections 13 and 14 and extends southward into Dennison township. The wells are not highly productive. The oil lies in an extensive flat in the sand which spreads southward through the remainder of the field. The McClosky sand shows a number of excellent wells in section 14.

#### DENNISON TOWNSHIP.

The Bridgeport, Kirkwood and McClosky are the prominent producing sands of Dennison township. The Kirkwood sand, as in Bridgeport and Petty townships, is the most widely productive. The Bridgeport sand closely follows the Kirkwood sand in yield but is spotted in its distribution. The McClosky formation has furnished the best producing wells.

The Bridgeport sand is especially productive in sections 2, 26, 34 and 35. This area lies along the southwestern edge of the field. The wells average 50 to 150 barrels initial yield.



The Buchanan sand is notably productive only in section 21, which is an extension of the small dome lying in sections 15 and 16, Lawrence township. The wells are exceptionally large in their initial yield.

The Kirkwood sand shows many wells in sections 22, 23, 25, 26, 35 and 36. The initial yield averages 100 barrels. The oil lies over a broad flat in the sand that covers most of Dennison township.

The Tracey sand shows a light production in sections 25 and 26.

The McClosky sand has its type area and best production in section 25. There are many gushers from the McClosky sand in this section, the highest reporting 1,860 barrels for the first day. The productive areas of this sand lie at an altitude of about 160 feet above the datum plane.

### GAS.

There are about 70 gas wells in Lawrence county. Gas is reported incidentally in over half of the records and is widely distributed in all the sands. The Kirkwood, Tracey and McClosky sands have yielded the most gas, particularly in Petty township where the field is governed by an elongated dome. The following table shows the locations and all available production data of the gas wells in Lawrence county:

*Locations of Gas Wells in Lawrence County, and Sources of Gas.*

Township.	Section.	Quarter-section.	Well number.	Name of sand.	Yield in cu. ft. per day.	Remarks.
petty.....	1.....	NW.	6	Tracey.....		
	1.....	SW.	3			
	2.....	NE.	2	Kirkwood.....	4,000,000	Second lens.....
	2.....	NE.	4			
	2.....	NE.	6	McClosky.....	2,500,000	
	2.....	NE.	7	Kirkwood.....		
	2.....	NW.	1	do.....		
	2.....	SE.	2	do.....	7,000,000	600 pounds pressure
	2.....	SE.	5	do.....		Second lens.....
	7.....	NW.	10	Tracey.....		
	7.....	SW.	9	do.....		
	12.....	NE.	4	Kirkwood.....		
	12.....	NE.	5	Tracey.....		
	12.....	NW.	1	do.....		
	12.....	NW.	2	do.....		
	12.....	NW.	7	do.....		
	12.....	SE.	1	do.....		
	12.....	SE.	9	do.....		
	13.....	NE.	4	Kirkwood.....		
	19.....	NW.	2	Tracey.....	3,000,000	
	19.....	NW.	6	do.....	7,500,000	650 pounds pressure
	19.....	SE.	6	do.....		400 pounds pressure
	19.....	SE.	29	"Gas".....		
	20.....	SW.	29	Bridgeport.....		
	24.....	NW.	3	Kirkwood.....		Second lens.....
	25.....	NE.	7	Tracey.....		T. 5 N., R. 13 W.
	25.....	SW.	4	do.....		do.....
	25.....	SW.	5	do.....		do.....
	29.....	NW.	39	do.....		520 pounds pressure
	29.....	SE.	1	"Gas".....		
	30.....	NE.	24	McClosky.....		
	30.....	SW.	6	Kirkwood.....		
	30.....	SW.	9	Tracey.....		
	30.....	SW.	13	"Gas".....		
	30.....	SE.	31	do.....		
	30.....	SE.	59	McClosky.....	6,000,000	
	30.....	SE.	69	do.....	2,000,000	
	36.....	NW.	9	do.....		T. 5 N., R. 13 W.
	36.....	NW.	12	Kirkwood.....		do.....

*Locations of Gas Wells in Lawrence County—Concluded.*

Township.	Section.	Quarter-section.	Well number.	Name of sand.	Yield in cu. ft. per day.	Remarks.
Bridgeport.....	8.....	NW.	29	Buchanan.....	1,000,000	
	31.....	NE.	7	McClosky.....	1,000,000	
	31.....	NE.	23	..do.....		
	31.....	NE.	48	..do.....		
	31.....	NE.	50	..do.....		
	31.....	SE.	6	"Gas".....		
	31.....	SE.	11	McClosky.....		
	31.....	SE.	14	"Gas".....		
	32.....	SW.	6	..do.....	1,000,000	
	32.....	SW.	10	McClosky.....		
	32.....	SW.	24	Kirkwood.....		
	1.....	SW.	2	Tracey.....	4,500,000	
	1.....	SW.	6	Kirkwood.....	3,000,000	Second lens.
	27.....	SE.	3	Bridgeport.....		
Dennison.....	27.....	SE.	4	..do.....		
	34.....	NE.	2	..do.....		
	34.....	NE.	5	..do.....		
	34.....	NE.	6	..do.....		
	35.....	NE.	4	..do.....	2,000,000	
	35.....	NW.	7	..do.....		
	35.....	NW.	8	..do.....		
	35.....	SE.	1	Shallow.....	2,500,000	

## PETTY TOWNSHIP.

The greatest number of gas wells of the Lawrence county field lie in Petty township. They are scattered along the flanks of the anticline. The "Gas" sand yields gas in small quantities over Petty township and abundantly in section 30. The gas does not occur at the apex of the large dome centering in this section but lies about 60 feet below on its western flank. The Kirkwood sand is especially productive of gas in sections 1 and 2 in the northern end of the field. The gas seems to be arrested along the steep western flank of the anticline. The Tracey sand shows the greatest productions of gas in this township, and, indeed, over the entire area. The best yield is in the northern portion of the township and through the middle of the broad fold. Several wells also yield gas about 120 feet below the apex of the dome in section 30. The McClosky sand shows an excellent yield of gas on the crest of the same dome.

## BRIDGEPORT TOWNSHIP.

The "Gas" and McClosky sands yield the best pressures of gas in the northern end of the township. The McClosky sand shows several good wells in section 31, about 70 feet lower than the crest of the dome. The two smaller domes in sections 31 and 32 contain gas. The "Gas" sand yields abundant gas in sections 6 and 31, but it lies between 100 and 140 feet below the crest of the dome. The Buchanan sand usually possesses little or no gas, but it reports it in several wells in sections 7 and 8. The type locality of this sand, section 17, does not report any gas. The Kirkwood sand shows a scattered record of gas in its many wells, but particularly in section 17.

#### LAWRENCE TOWNSHIP.

The Kirkwood sand shows gas in most of the wells in Lawrence township. The Bridgeport and Buchanan sands show no gas while the McClosky gives data from about six wells. There are no commercial gas wells in the township.

#### DENNISON TOWNSHIP.

The Bridgeport sand shows a number of gas wells in sections 1, 2, 34 and 35. Most all the wells penetrating the Bridgeport lenses record gas in them. The Kirkwood sand gives numerous records of gas over the township but particularly in sections 22, 23 and 36. The McClosky sand shows abundant gas in sections 25 and 36. The gas would be marketable from this sand but for the enormous yield of oil.

#### RELATIONS OF STRUCTURE TO SALT WATER.

The sands of Lawrence county show abundant water along the flanks of the anticline and but little through the center of the field except in the lower Bridgeport and Buchanan sands. The Pottsville rocks appear well saturated with water over the entire field and into the limbs of the LaSalle fold. The Chester sands are not uniformly saturated with water but seem to have limit lines of saturation along the limbs of the fold, more particularly along the western side. The McClosky sand similarly shows abundant water on the western slope of the fold and in parts of Petty township.

#### PETTY TOWNSHIP.

There is but little water shown in the record of wells in the producing sands of Petty township. The Bridgeport and Buchanan sands are closely associated and show abundant water in sections 1, 2, 19, 20, 29, 30 and 36. The Kirkwood sand shows some saturation beneath the oil in sections 12 and 36. The McClosky sand shows some water content in sections 12, 13, 15, 24 and 25.

#### BRIDGEPORT TOWNSHIP.

All the sands in sections 1, 18 and 36, Bridgeport township dip low on the western limb of the anticline and show much water. The upper Bridgeport lenses, like those of the Robinson sand of Crawford county, are generally barren of water within the oil pool in this region. The lower lenses are widely saturated in sections 6, 7, 8, 31 and 32. The Buchanan sand is completely saturated with water in sections 6 and 31, but water underlies the oil zone in its type locality, section 17. The Kirkwood and McClosky sands are usually free from water in this region, except along their outer edges.

#### LAWRENCE TOWNSHIP.

The Bridgeport sands contain abundant water in Lawrence township. The Buchanan sand is water-bearing in sections 2, 11, 12 and 14, but

contains less water and is oil-bearing in section 16. No water is reported for this sand in section 15. The bottom of the Kirkwood sand contains water in sections 1 and 13. The Tracey sand, in several cases, shows abundant water in section 10. The McClosky sand is reported water-bearing only in section 1.

#### DENNISON TOWNSHIP.

The lower Bridgeport lenses and Buchanan sand contain water over most of Dennison township. The upper lenses are productive at the southern end of the field and show some water beneath the oil in section 2. The Kirkwood sand shows water beneath the oil in sections 1, 5, 6, 7, 24 and 30. The McClosky sand is wet in sections 19, 24, and in the northern part of 25.

## CHAPTER V.

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### General Summary of Geological Conditions in Crawford and Lawrence Counties.

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#### GENERAL STATEMENT.

The features of the structure maps of the different sands, and their individual oil, gas, and salt water relations just described, are sufficiently similar to permit general conclusions as to the accumulation of oil and gas in Crawford and Lawrence counties. These conclusions add to the general fund of evidence confirming the accumulation of oil and gas in folded rocks.

#### GENERAL STRUCTURE OF REGION OF THE LA SALLE ANTICLINE.

The greater portion of Illinois lies within the Eastern Interior Coal Basin, which is, broadly speaking, an extensive spoon-shaped basin, with its long axis extending along a line through Cerro Gordo, Lovington and Olney and with its deepest part in Wayne, Hamilton and Edwards counties. The east side of the basin rises into a strong longitudinal fold known as the LaSalle anticline, which extends from the vicinity east of LaSalle in a southeastern direction to Sadorous in Champaign county. From thence it passes near Tuscola and enters the oil territory of Clark county near Westfield. It continues in a direct line through the oil fields in Clark, Crawford and Lawrence counties until the vicinity of St. Francisville in the latter county is reached. The identity of the fold is lost beyond Lawrence county but it is thought to cross the Wabash into Indiana and possibly merges into the eastern flank of the Illinois basin. The writer has compiled several structure sections<sup>1</sup> which illustrate these facts.

The formations ascend from the axis of the basin into the Crawford and Lawrence county oil fields at the rate of about 50 feet per mile. The ascent becomes more rapid in Lawrence county because of the presence here of the very sharp apex of the anticlinal dome.

The sands of the Illinois basin have been thoroughly tested immediately west of the oil fields and found full of salt water. The lower

<sup>1</sup> Ill. State Geol. Survey, Bull. No. 16, 1910, pls. 7 and 11.

flanks of the fold are known to yield abundant salt water in all the sands which are productive in the main fields. The conditions for the accumulation of oil and gas in the fields are ideal because of the presence of the following governing factors:

1. There is an extensive anticline with a marked basin on at least one side.

2. The depressions on both sides of the fold, showing abundant water, comprise extensive "feeding areas" for the arch.

3. The sands are commonly porous and hence form suitable reservoirs for the storage of oil.

4. There are abundant shales and limestones overlying the sandstones which originally furnished the oil and now probably serve as impervious covers to the reservoirs.

5. The sands in both limbs of the anticline are abundantly saturated with salt water which is probably instrumental in holding the oil and gas captive in its present position. This consideration is highly important because of the relations of water and oil and the resultant concentration of oil in folded structure.

6. The portion of the arch containing oil is six to seven miles in its extreme breadth and one or two miles wide in the narrowest places. The large amplitude and breadth of the arch offered an enormous reservoir capacity.

#### DETAILED FEATURES OF THE FIELDS.

The detailed discussion of the structure in the Crawford and Lawrence county field proves conclusively the presence of a major fold governing the accumulation of oil and gas in this region. The crest of the fold, however, is shown to be very irregular. It is interrupted by numerous minor domes and transverse depressions, which perhaps have been instrumental in segregating the pools. The succession of irregularities culminates in a very extensive uplift of the axis of the anticline north of Bridgeport, Lawrence county, which has the appearance of an elongated dome. Other portions of the anticline show a flattened crest or minor domes.

With one exception the best collection of oil was found over the extensive flat areas along the crest of the parent fold. The large dome in the Lawrence county field shows an exceptional accumulation of oil around its flanks but not at the crest. The domes over the entire area investigated are logical gas reservoirs. The gas, however, does not lay at the apexes of the domes but a short distance below. The best gas and oil wells on the dome in Petty township, Lawrence county, are from 50 to 100 feet lower than the apex. The smaller domes in Lawrence county show good accumulations of oil.

The uppermost part of the flanks of the major fold contain abundant oil. The oil decreases in quantity toward the outer boundaries of the field. The western limit is abrupt and the wells along this boundary produce abundant water. Enough data are at hand to conclude that this is a line of water saturation and that above this line and over the fold most of the sands are wholly oil-bearing. The Pottsville rocks are exceptional in that they contain water in the lower portions and in

some cases are wholly saturated over the fold. These rocks are widely distributed over Illinois and are conspicuous for their yield of salt water. The sands lower than the Pottsville and the upper Bridgeport and Robinson lenses do not show much saturation over the crest of the anticline. There are one or two spots in the field that show isolated patches of water-bearing sand, particularly in the Kirkwood and McClosky sands.

Some of the non-producing wells in the producing areas owe their condition to impervious sands or thinning out of producing sands. Lack of porosity will perhaps explain the position of dry wells often occurring at or near the very minor domes or small pits that occasionally exist along the crest of the fold.

#### PROSPECTIVE POOLS.

It is probable that the high spots along the crest of the major fold, especially the one in section 30, Petty township, Lawrence county, represents cross folding or buckling. This condition would suggest that the territory east of the fold would be similarly affected, particularly in the lower producing formations. New pools are then possible to the east of the fold in positions and directions perpendicular to the trend of the field and parallel to the raised portions of the anticline. The presence of oil in Honey Creek and Montgomery townships of Crawford county seem to bear out this relation. The chief raised portions of the fold occur in section 1, the northwest corner of section 18, and section 30 of Petty township; sections 10 and 14, Lawrence township and sections 23, 26 and 35 Dennison township, all of Lawrence county.

The western side of the Crawford and Lawrence county oil fields, with one exception, is sharply defined and is bounded by a line of water saturation. In addition to this, the dip of the strata into the Illinois basin is so pronounced that the only possibility for new pools lies along unknown terraces, similar to the one occurring in section 29, Bridgeport township.

The extension of the south end of the field is problematical and almost impossible to forecast with the present development, owing to the lack of data and the uncertain character of the anticline. It is also likely that the gap between the Lawrence and Crawford county fields will remain barren as it seems to represent a large transverse basin on the fold.

Possibilities for the production of oil in sands in Crawford county, corresponding to the deep producing formations of Lawrence county, are slight because of the established fact that these formations gradually pinch out to the north of Lawrence county.

## CHAPTER VI.

### Economic Features of the Illinois Fields.

#### INTRODUCTION.

The discovery of profitable quantities of oil in Clark county in 1904 and 1905 led to a remarkably rapid development of the oil fields in the State. The development is all the more surprising when it is noted that in the short period of six years a production of such proportions reached its zenith. Other great fields of America required as high as 30 years to attain such a position. Besides, the Illinois production comes from the smallest areal extent of oil producing territory of the first seven ranking states:

Rank.	State.	Square miles of petroleum lands.
1	California	850
2	Oklahoma	400
3	Illinois	250
4	West Virginia	570
5	Ohio	650
6	Texas	400
7	Pennsylvania	2,000

Illinois gained ninth place for production and value of oil in 1906 and third place for both in 1907. Since 1907 the State has held third place for production and second for value and has been exceeded only by California and Oklahoma. Up to January 1, 1912, about 19,982 wells had been drilled for oil and gas in the State, of which 15.7 per cent were barren. The remaining 84.3 per cent have produced since 1905 about 157,905,084 barrels of oil, valued at about \$101,666,473. The extent of the fields, the grade of the oil, and the efficiency of production, place them among the greatest of the world from an economic point of view.

The successful growth of the Illinois fields may be attributed particularly to the quiet efficiency of experienced and capable oil men. The Appalachian fields supplied the greatest influx of operators, and these, through many years of training, determined the trend of development. They soon established the limits of the field and thus prevented useless explorations.



After oil has been found in commercial quantities in the shallow Casey pool, the operators began to drill in all directions. They were, however, soon limited east and west of Casey by boundaries which were defined by barren wells that either failed to show oil or yielded large quantities of salt water. This caused a shifting of the development inward and along a north and south direction. The discovery of oil in deeper sands in Crawford county led to the same tactics of development, and eventually the long narrow strip of oil country in Clark county approached the broader pool of Crawford county. Similarly, the movement continued from the deeper productive fields of Lawrence county.

The Illinois fields are somewhat different from others because of local conditions and the necessity of properly and economically caring for enormous quantities of oil. The business is divided into many branches, each of which, from the first step of leasing to that of an established production, requires careful and systematic attention. The Ohio Oil Company (Standard) controls most of the production and under its management, there have sprung up various departments necessary to cope with the rapidly increasing yield of oil. This has been done remarkably well and as has been truthfully said, "there never has been an oil field so well taken care of in so short a time as that of Illinois."

The following general discussion of the several phases of the oil business is made with a view of enlightening those readers who are not familiar with the business. It is not intended to be an authoritative explanation of the methods used in developing an oil field or of the details of drilling a well.

## DEVELOPMENT OF OIL PROPERTIES.

### FORENOTE.

The first step necessary to the development of any oil field is a business-like lease of the land, conveying distinct rights to both the landowner and the lessee. The successive steps of choosing well sites, drilling, shooting wells, and equipping oil properties involve activities separate from each other, yet so connected that each is a necessary part of the whole. In fact, the largest oil companies in Illinois have separate branches for leasing, drilling, buying, pipe-line discharging, telegraphing, and engineering.

The first step of the oil operator after learning of an "oil strike," is to lease as near as possible to the producing wells. If he has sufficient knowledge of the geological structure of the area, he follows the trend of the anticline or terrace, as the case may be. If he feels that his properties are within the limits of possible producing territory, he makes his locations and starts his drilling.

It is regrettable that many inexperienced operators are attracted by the rush to newly proven areas and by lack of knowledge of both the nature of the business and underground conditions, are led to failure. It is often the case that such novices open up a field. Any observer of the oil business will soon note, however, that the larger companies and operators do but little "wildcatting," preferring to profit by the ex-



The standard derrick.

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perience of the novice. It is true also, that field limits of many proven areas are established only by these indiscriminate test holes.

#### LEASING.

In contrast with the oil territories of the mountainous Appalachian regions and of the far west, Illinois is a drift-covered plain. All of it is either in cultivation or devoted to pasture. The land divisions are simple and uniform and are based on the civil township of thirty-six sections. Each section usually is sub-divided into tracts of the multiple of twenty acres. The leasing of properties then starts upon a simple basis.

There are no set rules concerning leasing as this is necessarily dependent upon local conditions. The oil men deal entirely with individual land-owners, and leases are private bargains. While some of the territory is developed by land-owners, it is more often leased to operators for a period of five years, with option of further lease as production continues. If adjoining property is untested at the time of leasing, the farmer usually receives a royalty of from one-eighth to one-sixth of the future production, with the further stipulation that drilling is to begin within six months to two years, or that a stated rental per acre will be paid until the first well is drilled. If, on the other hand, the desired property lies near producing territory, the land assumes added value and a bonus is demanded in addition to the royalty and the reservation of the fee. The closer the farm is to good oil properties, the higher the bonus becomes; it averages from \$10.00 to \$40.00 per acre, but sometimes reaches \$200.00 or more per acre.

The land-owner retains all surface rights of the land, except on the portion necessarily used by the operator for his equipment, including a full quota of wells, power house, boiler house, tankage, waste pit, and pull rods. Upon an 80-acre tract not more than six acres are necessary for this. A large portion of the land in the oil district is not considered especially valuable from an agricultural point of view and consequently but little restriction is placed upon the operations.

In certain portions of the field, industrious farmers till their ground and at the same time derive a good income from oil. If a large storage of oil is contemplated it is customary to buy the land outright for a so-called tank-farm.

Stipulations are usually made regarding the use of gas by the land-owner and of payment by the lessor for active gas wells. This generally averages from \$100.00 to \$200.00 per well per year. There are but few large gas wells in the Illinois fields and the income is insignificant as compared with that derived from the vast production of oil.

The lessee further agrees not to drill wells closer than 200 feet to any dwelling or barn, except in the case of town lots. (See Pl. XXIII, B.) This may be made optional with the land-owner and merely serves as a protection to his perishable property.

It is also agreed that the lessee shall be responsible for all damages caused to growing crops, provided there is enough in amount to warrant complaint. Oftentimes when a well is shot and a good flow is secured, the wind will spray the oil over a considerable area of growing grain

and will thus render it unfit for use. Again careless driving over cultivated ground will destroy a portion of the crop and so warrant complaint. All pipe lines are buried below plow depth.

After production is established, the lease becomes the most valuable part of the oil property. It is often sold, the price depending mainly on the number of producing wells and their average daily yield. A transfer of lease often takes place even though no wells have been drilled on the tract. The price of this is dependent upon the distance from proven property. In fact, lease speculation has become a very lucrative business, particularly in newly opened areas. The speculator watches the prospecting and upon the first news of the oil strike, rushes to the locality and leases what he can without a great amount of expense. The demand for land "close up" to the active wells soon outstrips the supply and the unfortunate operator who is late or who really wishes to drill, is forced to pay the speculator's price. A good example of this type of traffic was shown in the recent Carlyle, Illinois excitement.

The following form of lease is in common use in Illinois:



The steel derrick.

**OIL AND GAS LEASE.**





*Oil and Gas Lease—Concluded.*

such well, as aforesaid, shall he and operate as a full liquidation of all rental under this provision during the remainder of the term of this lease. Any payments falling due may be made direct to lessor.....or deposited to.....credit in .....

Second party agrees to bury all pipe lines below plowing depth when requested by first par.....

Second party agrees to pay all damages to crops caused by his operations on this land.....

..... IT IS AGREED. That the second party is to have the privilege of using sufficient water, oil or gas from the premises to operate same (except water from wells, ponds or cisterns without consent of first part.....) and at any time to remove all machinery and fixtures placed on said premises, and further, upon the payment of One Dollar, at any time, by the party of the second part, to the part..... of the first part, said party of the second part shall have the right to surrender this lease for cancellation, after which all payments and liabilities to accrue under and by virtue of its terms shall cease and determine and this lease shall become absolutely null and void.

It is expressly understood and agreed that all agreements, terms and stipulations contained herein shall extend to respective heirs, successors, administrators or assigns of parties hereto.

Witness the following signatures and seals.

WITNESS:

..... (SEAL)  
..... (SEAL)  
..... (SEAL)  
..... (SEAL)



A.



B.

- A. A nitroglycerine plant.  
B. A storage magazine for nitroglycerine.



## CHOOSING A WELL SITE.

When the lease is secured and the operator is ready to drill, he must choose the site for his first well. This is governed by one or two generally recognized rules or courtesies and many local circumstances. It is usually the custom to place wells about 210 feet inside the property line. This varies, however, with different depths of sand. Wells in the shallow fields are often placed 100 feet, or perhaps less, from the property lines. The drilling is usually inexpensive and many wells are drilled in the eager demand for the oil, with the result that such a field is quickly drained. The location lines in Crawford county are almost always maintained at the regular interval of 210 feet from the line but in the deep Lawrence county pools the distance is from 250 to 300 feet. The distance between wells on the same lease depends on expense and other factors. In the Clark and Crawford county fields they are generally placed 450 feet apart, but in Lawrence county, wells to the deeper sands are located 660 feet apart.

An unwritten law among operators in most fields requires the lessee to drill opposite producing wells on adjoining property. This is called "offsetting" and is done to protect property lines and prevent drainage of oil from the lease. It has been legally determined that a landowner can bring suit to make a lessee "offset" wells or else secure the surrender of the lease. It is the custom to offset all adjoining wells on the neighboring leases and leave the centers to be drawn upon. The free space in an 80-acre tract thus measures 900 by 2,250 feet. The line wells then draw to good advantage, and unnecessary center wells are avoided. It is a difficult matter to estimate the acreage drawn upon by oil wells. This is dependent upon the thickness and porosity of the sand, the area of the pool, and the location distances of the wells. It is estimated that about five acres are drawn upon by the Clark county wells, eight in Crawford county, and ten to twelve in Lawrence county. Without considering center wells, twelve to fourteen are drilled on an 80-acre tract in Clark and Crawford counties and from eight to ten in the Lawrence county field.

The choosing of a site may be affected, furthermore, by sudden dips in the sand about a regular location, thus breaking up the regularity of location lines. Further irregularity may be caused by the presence of buildings, permanent power houses, or unfavorable topographic features. It may seem advisable to even shift wells from a drift covered valley to the side of a hill where less expense is incurred in placing the drive-pipe. Well locations are often chosen in prospective areas with respect to the water and fuel supply. The advance of oil operators into active coal fields of the State may necessitate selection of well sites so as not to endanger mines and their employees.

## DRILLING.

The third step in the development of oil properties is a contract between the operator and the drilling contractor. An agreement is drawn up between the two for the drilling at a certain price per foot, dependent upon the locality and the depth of the desired sand. A uniform rate is usually established by the supply houses in an active oil field. Drilling

in "wildcat" areas usually costs more than in a proven area because of the distance from railroads and the lack of material, fuel, water, etc. Deep sands and peculiar formations also affect the cost per foot of drilling.

Stipulations are made in the contract for drilling a specified depth and the contractor is held responsible for the well to that depth, or possibly to the extent of reaching the desired sand and determining its productivity. The agreement states that drilling shall begin within a specified time.

The contractor is responsible for the purchase and construction of the derrick. He furnishes boiler, string of tools, fuel, water, drillers and tool-dressers, and is held responsible for accidents. The contractor must replace the casing after a successful shot; clean out the well and pump it for a specified time free of charge, and tube the well. Should further cleaning be necessary after the time stated, a charge is usually made by the contractor for this service at the rate of \$15.00 per day and the operator furnishes fuel and water. A rate of \$2.50 per day is usually made for extra pumping. The contractor is permitted to use any oil or gas as fuel for drilling that he may find during the progress of his well. If the contractor experiences trouble in setting his casing, he is usually paid a reasonable amount for labor. In case a dry hole is secured the contractor must pull all the casing possible and in the event of a producing well he must draw that casing which is not desired in the well. In all events the contractor must put the well in order for pumping.

The operator, on his part, usually agrees to furnish conductor, drive-pipe, casing, tubing, and rodding. He provides for hauling the pipe and necessary accessories other than the driller's string of tools and rig. The operator is responsible for the plugging of a dry well and the filing of the affidavit thereto.

When the contract for drilling is signed, the operations pass into the hands of the contractor, who in turn contracts with the rig-builder. Nearly all rigs in the Illinois fields, outside of the Clark county pools and portions of Crawford county, are of the Standard type. (See Pl. XVI.) They are constructed of timber and consist of four strong up-rights held in the shape of a pyramid by ties and braces, and resting on strong wooden sills. This derrick is used as a support for the sheave or crown pulley, which must be of sufficient height—66 feet in the shallow fields and 72 feet in the deeper fields—to swing the long, heavy, drilling tools free from the derrick floor. A second pulley is fastened to the top to swing the bailer free.

Connected with the derrick are principally the bull-wheel and shaft on which is wound the cable supporting the drilling bit; the walking beam, giving vertical motion to the tools; the band wheels, transmitting power from the engine to the movable parts; and the sheds to protect the engine, bull-wheel, and shaft from inclement weather. When these main portions of the derrick with necessary minor details are complete, the rigbuilder has fulfilled his part of the contract. The contractor then sets his boiler in place, adjusts his engine; winds his cables; places his swinging cranes for lifting the drilling bits; and does many trivial things necessary to facilitate his work.



A.



B.

- A. Oil tanks under shed.  
B. A pumping disc.



The construction of the standard rig requires about three days and costs about \$500.00. The same derrick can be used about twelve times, at an extra cost of about \$100.00 each time for tearing down and rebuilding and for additional repairs and materials.

The steel derrick (see Plate XVII) is used in some portions of the field, though not extensively. The uprights are of steel and the braces and ties are of wire, cable or thin steel rods. The sheds, shaft, and bull-wheels are of wood. The steel derrick can be torn down easily and moved indefinitely but its original expense is much greater than the standard derrick. The leading objection to the steel derrick is the probability of breaking or twisting pieces of the frame work during transportation and causing delay in expense and repair.

In the shallow fields a portable drilling rig is more often used than a permanent one. The whole outfit is mounted on a heavy wagon and includes a single high timber, fitted up as a derrick, while the remaining necessary parts are assembled in a compact manner back of it. This rig is not practical for deep sands or hard formations. There are two types of portable rigs, known as the "Star" and the "Parkersburg." Their cost, including all equipment, is about \$2,300.00. A larger type of portable drilling rig has been perfected recently that is suitable for deeper sand pools. The cost of this rig is about \$10,000.00.

The costs of drilling wells in Illinois has gradually declined since the opening of the Casey field in 1906. At that time the cost was \$1.00 per foot when fuel and water were not included, and 90 cents per foot when they were supplied. The following costs of drilling are representative for the various pools:

*Cost of Drilling in Illinois Oil Fields.*

Pools.	Depth.	Cost per foot.
Clark county, 400 to 500 feet.....		\$0 80
Crawford county, 750 to 1,000 feet, 1907.....		1 00
Crawford county, 750 to 1,000 feet, 1908.....		0 90
Crawford county, 750 to 1,000 feet, 1909-1910.....		0 80
Crawford county, 750 to 1,000 feet, 1911.....		0 70 to 0 85
Lawrence County—		
Bridgeport sands, 800 to 950 feet, with 10-inch drive-pipe and 6 5/8-inch casing.....		0 80
Bridgeport sands, with 16-inch drive-pipe and 8 1/4-inch casing .....		1 35
Buchanan sands, 1,250 to 1,400 feet.....		1 35
Kirkwood sands, 1,450 to 1,650 feet.....		1 50
Tracey sands, 1,700 to 1,750 feet.....		1 50
McClosky sands, 1,775 to 1,875 feet.....		1 50

The approximate time required to drill, shoot, clean, and put in order a well in the different pools is as follows:

Pool.	Days.
Clark county, or Shallow sands.....	4 to 5
Crawford county .....	10 to 12
Lawrence County—	
Bridgeport sands .....	10 to 12
Buchanan sand .....	20 to 25
Kirkwood sand .....	35 to 45
Tracey sand .....	60 to 75
McClosky sand .....	60 to 100



The Bridgeport sands were the first developed in Lawrence county and were drilled with the small sized pipe similar to that used in the Robinson sand of Crawford county which is at the same depth. Later when the deeper sands were discovered and found more prolific, it became impracticable to use  $6\frac{1}{4}$  inch casing. To secure production from all sands, therefore, a larger size drive-pipe and  $8\frac{1}{4}$  inch casing were introduced. The operators found it profitable to drill new wells with larger size pipe rather than redrill the older ones. The old wells were allowed to produce until abandonment and, indeed, there are many that are still producing. These lie close to the town of Bridgeport.

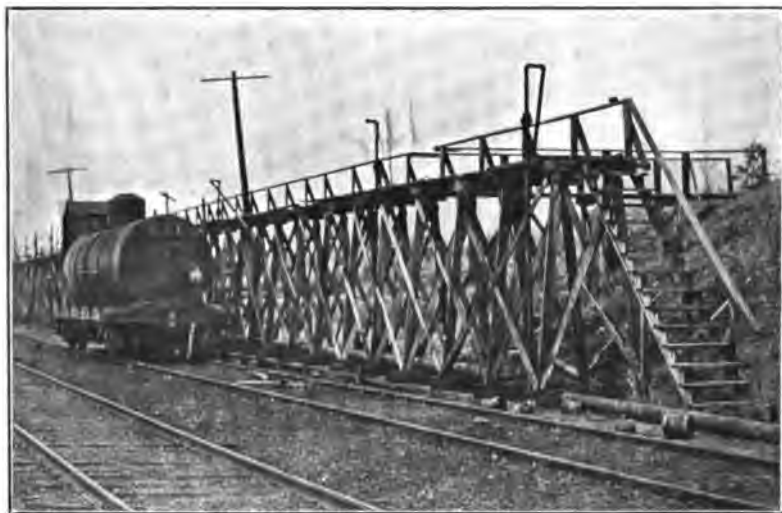
The drilling crew consists of two drillers and two tool-dressers, who work by pairs in shifts or "tours" of twelve hours each. It is the duty of the driller to stay close to the mouth of the bore, regulate the cable and temper screw when necessary, control the machinery, etc. The tool-dresser acts as an assistant, fires the boilers, attends to the engines, dresses or sharpens the bits, assembles the small tools, switches the bull-wheel cable, etc. The average daily wages of drillers is \$5.00 and of tool-dressers \$4.00.

The first process in the drilling of oil well is that of "spudding"—a method used in drilling the first 75 to 150 feet through what is known as the drift, and usually stopping at bed rock. The drift is composed of soil, sub-soil, clay, gravels, and sands, and is usually soft. A short cable is fastened by a shoe to the crank of the band wheel and to the general cable extending from the bull-shaft over the crown pulley and to the spudding drill in the well. As the band wheel turns, the short cable jerks the tools up and down. The bull-shaft is clamped while the spudding is going on and when it is released the cable and spudding drill are fed downward into the hole.

The hole is usually started in a large size conductor and the spudding apparatus is guided by hand. The regular drilling bit and stem are too long and heavy to manipulate for spudding.

When the spudding has been completed the stem and bit are substituted and are connected to the walking-beam and temper screw which lift the tools and cable at a varying rate of speed, dependent upon the depth of the well and the condition of the formations. The walking-beam rocks back and forth on an upright post independent of the derrick and so gives vertical motion to the cable and drill. The temper screw is fastened to the end of the walking-beam. The cable is clamped to the lower end of the screw and as it is necessary to lower the drill, a handle is turned and the tools are fed downward. The driller determines the lowering of the cable by the feel of the rope or its tension, and the temper screw is adjusted accordingly.

The temper screw varies in size from four to seven feet, the average screw-depth measuring five feet. The difference in length is due to the spring of the hemp cable. After a screw-depth of drilling has been accomplished the tools are withdrawn and a bailer is lowered in the hole. The bailer or sand bucket is a long section of hollow tubing with a ball and tongue valve at the bottom. As this is lowered into the thin mud and liquid at the bottom of the well, the valve opens and allows the bailer to fill. The weight of the liquid closes the valve as the bailer



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B.

A. A modern tank-car loading rack.  
B. An early tank-car loading rack.

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is lifted. When the bailer touches the ground at the mouth of the well, the valve releases and the slush pours out.

It is customary to place drive-pipe through the drift to bed rock. A square hammer is usually fitted to the top of the stem. The stem rests inside the pipe as the hammer strikes the top of it. When a section is driven its length into the hole, a second section is then coupled to the first and the driving is continued. The driving of the pipe is manipulated with the same apparatus used for spudding. The first casing is usually driven through the first salt water sand and, in the event of a bad cave, also through the caved material. Casing is never driven until it becomes necessary to do so. In case the driving of the pipe is difficult, a sharp heavy shoe is attached to the bottom.

### SHOOTING THE WELL.

When the oil-bearing stratum has been tapped and found productive the work is continued slowly until within a few feet of the bottom of the sand or until evidence of salt water appears. The driller notifies the operator who in turn arranges with the agent of a nitroglycerine company to bring the explosive and shoot the well. After the shooter has measured the sand accurately with a steel-line tape, he pours the nitroglycerine into tin shells  $5\frac{1}{2}$  inches wide by 5 feet long, holding from 10 to 20 quarts each; and by means of a lowering line, pulley, and special releasing device, lowers them to the producing sand. The shells are conical at the lower end and concave at the upper, so as to fit snugly together. The top shell bears a water-proof percussion cap connected by a wire to an electric hand-battery above ground. A "Jack-squib" is often used to explode the shot. This is a tin tube, about 3 feet long containing a dynamite cap packed around with sand. A fuse is extended from the squib and is lighted and lowered. This is used when the hole is clean and not caving and when the casing is not pulled before the shot. In some cases the squib may contain a small quantity of nitroglycerine and be arranged to explode with a time fuse. The explosion opens a large cavity in the producing sand and cracks the bed for a wide radius, thus allowing the contained oil and gas to flow to the well. The greatest care is used in placing the shot in order not to disturb the overlying shales or the underlying sand, which usually contains salt water. If the shales are loosened to any extent they fill the cavity with debris and make the work of cleaning the well difficult. In case it is known that the lower sand does not contain salt water, drilling is carried through the sand and a pocket is made by the explosive to catch the caving material. If the salt water sand is tapped, a flow is often started that is difficult to control and which often drowns out the oil. In such a case the well is usually abandoned, although instances are known where the salt water head has been pumped off and a production of oil secured later. If it is desired to shoot the sand some distance from the bottom, an anchor, or supporting tube for the shot is placed at the bottom of the sand. If there are two producing sands close together two charges are set and an anchor, loaded with nitroglycerine, is placed between the sands. The explosion of the upper shot transmits the force to the second through the anchor.

The size of the shot depends upon the texture and thickness of the producing sand. It has been found that 30 feet of sand requires about 60 quarts of nitroglycerine. A charge of 80 to 100 quarts is sufficient for all sands in the Illinois fields. It is usually the custom to leave the 8 and 10-inch casing in the well and pull the casing near the producing sand previous to the shooting. This eliminates danger of collapsing or mangling. The casing is lowered later in cleaning the well.

About ten seconds after the shooter has discharged the explosive there is a quick jar of the earth, followed by a muffled report. With a roar the gas pours forth from the well in a bluish-white streak, followed, shortly, by a column of oil and water. This rises slowly to above the top of the derrick, where it sprays out in the direction of the wind. The rattling pebbles against the derrick, and the heavier thuds of large fragments on the ground are heard for several minutes. The column of oil subsides in a short time and the drillers cap the well or turn the flow into emergency tanks.

The shooters hold responsible positions and are chosen by the explosive manufacturers for their cool-headedness and skill. They receive salaries from \$100 to \$125 per month and usually a bonus for successful work and good behavior.

The torpedo company, through its shooter, is held responsible for the well from the moment of taking charge, and, if a premature shot takes place through carelessness or neglect, must arrange to drill another well immediately near the same location or pay for the ruined well. When the shot is successful the contractor resumes charge of the well and completes it by cleaning out and putting it in order for pumping. In all cases the shooter is required to know that the well is in perfect condition before shooting. It often occurs that after his explosive is partially set, the overlying formations cave and cover the shot. The shooter and drillers cooperate and clean out the well very cautiously to the top of the shot. Several days of the shooters time are thus required before he can complete his task, at an extra cost to the company.

The torpedo companies maintain manufacturing plants in isolated spots in each main field (see Pl. XVIII, A). Small storage magazines are built in other out-of-the-way places, usually one-half mile from any dwelling, so as to distribute the supply and avoid large loss in case of accident (see Pl. XVIII, B).

Special transportation is necessary to distribute the nitroglycerine. Large stock wagons supply the magazines and lighter wagons make distribution to the wells. The nitroglycerine wagon is built on strong but flexible springs, and is easily recognizable because of the height of the bed above ground. The bed of the wagon is fitted with square padded cells for each 10-quart can of liquid. The words "Nitroglycerine, Dangerous," are printed on the outside of each wagon and serve to notify the public of the nature of the vehicle. The shooter usually drives along unconcerned over bumps and ruts, confident of the security of his peculiar wagon. Accidents are rare, but they, sometimes, may be caused by collision or carelessness in pouring the liquid into the cans. A drop on the side of a can may be exploded by friction. The viscous liquid is safely poured by a steady hand.



A.



B.

A. A power or pumping house.  
B. A boiler house.



Both liquid and solid nitroglycerine have been used in the field. The liquid explosive is a definite chemical compound, known as tri-nitro-cellulose. Glycerine is treated with a mixture of concentrated sulphuric and nitric acids at a temperature below 30° centigrade to prevent explosion. During the nitrating process water is given off and is absorbed by the sulphuric acid. The temperature of 30° centigrade is kept uniform and is effected by blown air during the mixing. The rate of mixing is slow and regular. After mixing the product is washed with water to remove the surplus acid. The solid nitroglycerine is made into cylindrical forms and has the appearance of a yellowish transparent jelly. It has the consistency of rubber and can be readily handled without danger, both during transportation and at the well.

The process and product are patented. The liquid explosive is preferred because of its efficiency. The standard prices for the explosive are as follows:

Quarts.	Value.
10 .....	\$25 00
20 .....	40 00
30 .....	47 50
40 .....	55 00
60 and more, per quart.....	1 15

Other charges include 2 cents per foot for electric wiring, and in case of delay, an extra charge of \$15.00 per day for the time of the shooter.

#### LEASE EQUIPMENT.

##### CLEANING OUT AND TUBING THE WELL.

After the well has been shot and a production of oil assured, the drillers clean it out in a manner similar to the original drilling. The bit is worked through any accumulated debris and the bailer brings up the slush. The pocket or cavity is emptied and thus serves as a reservoir. A two-inch tubing, containing a 5/8 inch sucker rod and cup, usually placed in the casing to the sand and is connected to the pumping machinery. If the well is the first one, the rod is set to pumping directly from the walking beam. If the well is one of several, it is connected to the power-house by a pumping jack. A three-inch tubing is often used if the well is a large one or large quantities of salt water are encountered. The cost of tubing is 11½ cents per foot. During the life of the well cups often become worn or loose and are repaired by the use of a portable cleaning rig. (See Pl. XXVII, B.)

#### TANKS.

The oil from the first well is sent to emergency tanks and from later wells to the lease tanks. The tanks are usually low cylinders, built of wooden staves and steel bands. They range from 100 to 1,600 barrels capacity. The smaller tanks are transported to a well when oil is found and are used to receive the supply until the permanent lease tanks are located and built. The usual 250-barrel tank measures 2½ barrels of oil to the inch or 25 barrels to ten inches of depth. The cost of this



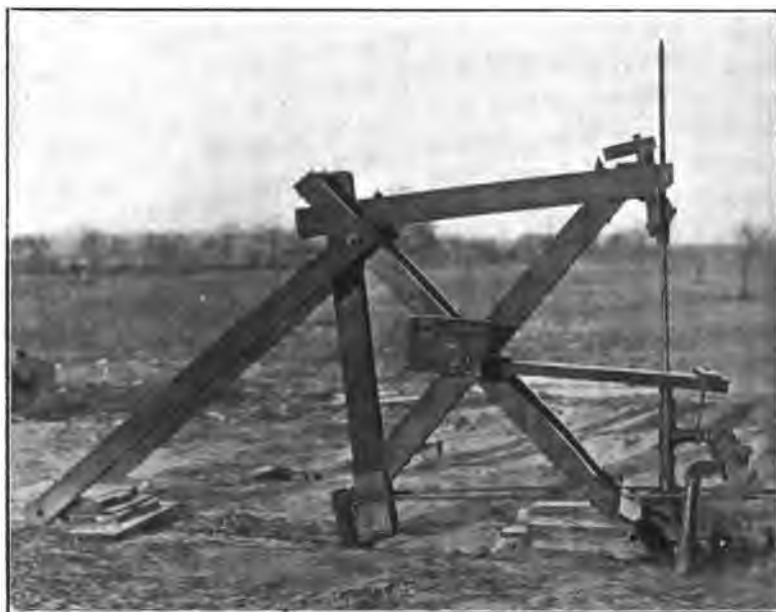
size tank is about \$90, and of the 1,600-barrel tank about \$450. Second hand 250-barrel tanks cost about \$50 and are preferred because they are saturated with oil and less liable to leakage. When several tanks have been built on a lease, sheds are placed over them for protection from evaporation and to prevent their warping by the sun's heat. (See Pl. XIX, A.) The average cost of these is about \$60, although the cost is dependent upon the size.

#### LOADING RACKS.

The oil from a new field is generally sent by donkey-pump to the nearest railway loading-rack (see Pl. XX, B) and is shipped by tank-car to the refineries or to manufacturing companies who have use for crude oil. The racks are usually composed of upright tubing of about two or three inches in diameter with swinging ends that fit into the mouths of the tank cars. They are connected direct to the pipe lines from the lease. The loading racks that are maintained in the fields at present are provided with facilities for measuring the exact amounts of oil shipped (see Pl. XX, A). Loading racks are installed at Bridgeport and Lawrenceville on the Baltimore and Ohio railroad; Lawrenceville, Birds, Flat Rock, and Robinson, on the Big Four railroad; Robinson, Stoy, Bakers Lane, and Oblong on the Illinois Central railroad; Casey and Oilfield on the Cincinnati, Hamilton and Dayton railroad; and Casey and Martinsville on the Vandalia railroad.

#### POWER AND BOILER HOUSES.

With four or five wells on a lease it becomes practicable to build a centrally located power-house for pumping them. The walls of the building are constructed of wood or corrugated sheet-iron, and the floors of cement (see Pl. XXI, A). A gas engine is installed at one end of the building, and at the other end an oscillating pull-wheel to give horizontal movement to the surface rods radiating from it to the different wells. The pull-wheel draws the surface rod toward the power and the weight of the sucker rod in the well assists in pulling it back, thus providing the necessary balance of work. A boiler-house is built close to the power house for emergency use and for steaming the oil (see Pl. XXI, B). The average cost of the power-house and boiler-house is about \$1,200. The 25-H. P. gas engines cost \$425; the 35-H. P. engines, \$585; the Mascot power, \$320, and the boiler, \$385. One equipment serves as many as 40 wells, but usually only 25 to 30. The power man in charge can not look after more than this number and accomplish his daily work. The power man makes the rounds of inspection, cares for his engine, boiler and oil tanks, and makes a daily report. It often becomes necessary on the larger leases to employ a helper. He is called the "roust-a-bout" and assists the power man in looking after the wells. The power fuel is usually gas and is generally piped from the wells in the lease. Some leases do not produce gas and it is then bought from another lease or from a nearby gas line. Steam is used if the lease is isolated or gas cannot be secured.



A.



B.

A. The standard pumping-jack.  
B. The steel pumping-jack.



## PULL-RODS AND PUMPING DISCS.

The surface pull-rods are generally made of steel or wire cable. They are supported in a level line to the well by posts of various lengths, depending upon the undulations of the farm. Notches are cut in the top of the posts for guiding the lines, and are greased occasionally to minimize the friction of the rod. Wells may be pumped in spite of intervening buildings or two wells may be attached to one general lead-line by the use of suitable angle-knees. Large flat, oscillating pumping discs are often used to overcome surface irregularities or obstructions, and for pumping across highways (see Pl. XIX, B). They are placed in the open field and are connected to the power by large pull-rods, which move alternately and turn the disc through an arc of about one-fifth of a circle. Surface rods radiate from the disc to the wells.

## PUMPING JACKS.

The standard wooden jack, steel jack and "home-made" wooden jacks are used in Illinois. The standard jack is substantially mounted over the well on heavy wooden sills. (See Pl. XXII, A.) The workable portions resemble a right triangle, with the right angle pivoted, the upper acute angle fastened to the sucker rod, and the lower acute angle to the surface rod. The pull-wheel draws the lower angle outward and at the same time raises the upper angle and sucker rod. When the stroke is made the weight of the sucker rod pulls the jack to its normal position. The steel jack is similar to the standard wooden jack except for materials and weight. (See Pl. XXII, B.) With the home-made jack the angles are reversed and the action is one of pushing. (See Pl. XXIII, A.) Light weight jacks cost about \$10.00 and heavy ones about \$17.00. Sometimes wells are so arranged that the working balance between sucker and surface rods is uneven. In this case adjustment is made by weights upon the jack to push the sucker rod down or by weights at other points to aid the pull-rod.

## REMOVAL OF SALT WATER AND STEAMING OIL.

Salt water often accompanies the oil into the tanks and by difference in weight finds its way to the bottom where it is withdrawn by opening a bung-hole. It is the usual practice to run the oil into separating tanks where a siphon is so set that the oil runs one way into the lease tanks and the water flows in another direction into nearby streams. The oil often roils and assumes a yellowish color when it is pumped too hard. This is due to a suspension of sulphur which interferes with refining. The removal of the sulphur and other impurities is accomplished by precipitation with steam, usually for three hours in a 250-barrel tank. The sediment is piped away from the bottom of the tank to a shallow pit some distance from the buildings, where it is burned and prevented from polluting the streams. (See Pl. XXIV, A.) The waste pit is a shallow hole in the ground surrounded by a small dike. It is usually constructed at a lower elevation than the tanks in order to provide a flow by gravity. A recent investigation by federal officials has put a stop to running waste oil into streams. It is claimed that

the waste has killed many fish and contaminated the water in the Embarrass and Wabash rivers. During freshets, it has saturated the foliage and underbrush along their tributaries, and in several cases, this was later destroyed by fire. (See Pl. XXIV, B.) The pollution of the streams is not only unsightly but the waste becomes offensive after having stood through the heat of a summer. It is true, however, that the streams cannot be freed entirely from waste because the surplus salt water must be taken care of. The present system of burning has greatly minimized the problem.

#### THE APPROXIMATE COST OF OIL WELLS.

The following table presents the approximate cost of the first wells and the lease equipment in the various Illinois pools:

##### *Cost of Wells and Their Equipment in Illinois.*

Items.	Clark county.	Crawford county.	Lawrence county.				
			Bridgeport sand.	Buchanan sand.	Kirkwood sand.	Tracey sand.	McCloskey sand.
Rig.....		\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500
Drilling.....	\$ 380	700	750	1,750	2,300	2,500	2,800
Drive-pipe.....	80	90	90	90	90	90	90
Casing.....	250	800	900	1,700	2,800	3,400	3,800
Shooting.....	90	90	90	100	100	100	100
Tubing and pumping outfit.....	150	150	150	200	215	250	250
Power and boiler-house equipment.....	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Tanks and sheds.....	250	250	250	250	250	250	250
Belting and lead lines.....	100	100	100	100	100	100	100
Incidentals.....	100	100	100	100	100	100	100
Total.....	\$2,580	\$3,980	\$4,130	\$5,990	\$7,655	\$8,490	\$9,190

The above figures may be increased considerably if trouble is encountered in drilling the well or if the well is situated at a considerable distance from transportation. The second and succeeding wells cost less than the first one by about \$1,700.00 in Clark county, \$2,400.00 in Crawford county, \$2,300.00 for those in the Bridgeport sand, \$2,800.00 for those in the Buchanan sand, \$2,900.00 for those in the Kirkwood sand, \$3,500.00 for those in the Tracey sand, and \$3,800.00 for those in the McCloskey sand. The rig, drive-pipe, a portion of the casing, tanks and power and boiler-house equipment serve for several wells. The incidentals include the expenses of the operator and the cost of teaming, which is dependent upon available teamsters and the amount of work being done, but which averages \$4.50 per day. The weights of the various sizes of casing most commonly used are,

10-inch .....	32 lbs. per foot
8¼-inch .....	24 lbs. per foot
6 5/8-inch .....	13 lbs. per foot

The general cost of drive-pipe, casing, tubing and rodding is as follows:



A.



B.

- A. A third type of pumping-jack.  
B. A town-lot well in Bridgeport, Ill.



*Cost of Well Supplies in Illinois.*

	Diameter— inches.	Cost per foot.
Drive-pipe.....	16	\$3.25
Casing (No. 50).....	12½	2.15
Casing (St'd).....	12½	1.24
Casing.....	10	1.09
Casing.....	8½	0.728
Casing.....	6½	0.5195
Casing.....	5½	0.407
Tubing.....	2	0.12
Oil line.....	2	0.098
Gas line.....	2	0.885
Sucker-rods.....	1	*4.04
Pull-rods.....	1	*3.57

\* Per hundred feet.

An idea of the enormous amount of casing and supplies used in the Lawrence county district is presented in Plate XXX.

## THE COST OF OPERATING A LEASE.

The cost of operating a lease does not vary noticeably in the several Illinois pools and indeed is often negligible when compared with the earning power of the wells. The high cost of development, the interest on the investment, and the expense of plugging wells are the barriers to be overcome, particularly in the deep sand areas of Lawrence county before profits accrue to the operators. The shallow fields of Clark county have been among the most profitable in the world because of the low cost of development and the high returns. On the other hand the deep wells of Lawrence county have been just as profitable perhaps, but the expense of development has been very high. This was overcome by a high and steady production. The Crawford county area has been a valuable and safe field because of the steady yield of the wells and a rather low cost of development. The first wells in any field usually hold up better than later wells and naturally produce more oil, probably because the openings were made permanent under stress or pressure, etc. The essential feature in operating is to overcome first cost and the interest on the investment. In the shallow fields eight wells steadily making two and even one barrel per day are found to be profitable. One company has operated 100 old wells for two years that yielded totally, 150 to 300 barrels per day. The total cost of operation was \$600.00 per month. The yield of oil gave an average net income of \$3,000.00 per month, with a maximum of \$7,000.00 per month. The minimum cost of operating a lease should average about \$120.00 per month while the maximum should be about \$160.00. The pumper receives \$66.00 for care of a light lease and about \$72.00 for two small leases or a large one. The sum of \$20.00 is required for fuel, although the gas cost is usually low or nothing, and \$30.00 for teaming and supplies.

In a declining field, after the cost of development has been met, it has been found profitable to pump three or four wells of 5-barrel capa-



city. The monthly output from four 5-barrel wells, after deducting a royalty of one-sixth, is 500 barrels. At the current price of 67 cents per barrel January 1, 1912, the income is as follows:

Five hundred barrels at 67 cents .....	\$335 00
Cost of operating.....	140 00

Net income .....	\$170 00
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The net income from ten 5-barrel wells or five 10-barrel wells would be about \$700.00 per month.

### INVESTMENTS IN OIL PROPERTIES.

Investments in oil properties fall naturally into two classes—those in the wild-cat, or unproven territory, and those in developed fields. One deals with chance and the other is largely a definite business venture.

An investment in a wild-cat scheme is at all times uncertain because there is no assurance of finding oil. Wild-cat work is necessary for the development of any oil territory, but it should be left, if possible, to those large companies which have a reserve fund for such purpose. These companies are in a position to drill several wells before oil is found or the venture abandoned. The basis of wild-cat work may be a geological study, surface seepage or a previous exploitation of some kind. The area in consideration is then leased, often in lots as much as 40,000 acres, which in case oil is found, would naturally protect the interests of the active operators. The only definite knowledge the prospecting company might have in unproven territory would be the result of the work of a competent geologist. This knowledge should lead the company from drilling in the basins, which would probably be full of salt water and afford little promise of the presence of oil, to raised structures where conditions for the accumulation of oil are more favorable. The drilling bit alone will give evidence of the actual presence of oil or its absence. The man of small means should, for his own protection, beware of venturing into new territory but should, if possible, join a responsible oil company that intends to purchase a proven property and develop it as such. He could lease and drill only in a limited area and one or two unsuccessful attempts would force him to abandonment. It has happened, however, that in some instances the small operator has been successful and has opened up a field, but experience proves that, generally, the case is otherwise.

Investments in developed fields are matters of calculation and judgment. A usual custom of a purchasing company is to send representatives into a field to carry on a ten-day gauge on those properties the buying of which is under consideration. At the end of this time the value of the property is rated at a definite amount per barrel of the average daily yield of the lease. The usual price per barrel for future production is about \$400, though it often reaches \$500 or more, if a property is particularly desirable. If a 40-acre lease produces steadily 500 barrels of oil per day, the buying price would be 500x400 or \$200,000.00. Under this investment a property with a reasonable decline should pay for itself in about three years. There is some opportunity



A.



B.

- A. A waste pit for burning waste oil.  
B. The effect of fire from waste oil on streams.

1. The first part of the document is a list of names and dates.

of failure even in producing areas through a sudden drain of the sands or a flooding of the area with salt water.

The actual amounts of oil won per acre are variable. Some portions of the field have yielded 6,000 barrels per acre and are still producing, though not extensively. Other portions with wells equally good in initial production have yielded only 500 barrels or less per acre. One tract produced 10,000 barrels per acre and from another of 20 acres over a million barrels of oil were taken. The last was only possible because the owner built his own storage tanks and pumped constantly. It is evident that this shrewd gentleman secured some oil which would have gone to his neighbors had they been similarly provided with storage.

The deeper and more prolific sands of Lawrence county have yielded much greater quantities of oil and perhaps will continue to do so, because of the several producing sands and the remarkable staying qualities of the wells. This area will probably be productive for a good many years, as has been the case in the Appalachian region. The shallower fields to the north with one sand, or two or more lenses of the same sand, are already showing signs of decline. The combined daily output of the Clark, Cumberland and Edgar county wells on January 1, 1912, was about 9,000 barrels as against about 40,000 barrels in 1907. The Crawford county yield reached about 20,000 barrels daily, as against 100,000 barrels in 1907. The Lawrence county production has steadily increased since the first development and at the present time produces more than the rest of the counties combined and about double that of Crawford county.

Since the Illinois fields were discovered, many men wishing to invest have found that the field was completely leased and that the only opportunity to share in the business was to join an established company or to organize a new company to buy partially or wholly developed tracts. Even this has been difficult because of the enormous prices asked for good leases and the scarcity of stocks of organized and prosperous companies.

The transfer of oil properties has been common in the last two years and has comprised dealings in both developed and undeveloped leases. The Ohio Oil Company, the producing agent of the Standard Oil Company, has been the most active purchaser of producing properties in Illinois. It has recently bought out many large companies such as the Jennings Oil Company, Parker and Edwards, Riddle Oil Company, Brown and Hogue, The Lee Oil Company, The North Fork Oil Company, and other smaller companies. Before these purchases it owned and operated leases to the amount of about 40 per cent of the fields. Its total holdings now are probably more than 70 per cent of the total development. This company buys and stores more than 90 per cent of the oil of the State. How much of the production comes from its own leases is not known, but certainly not less than half.

## BUYING, TRANSPORTING AND STORING OIL.

### BUYING OIL.

When the oil is steamed and ready to be sold, the power man notifies the gauger of the Ohio Oil Company or the Indian Refining Company,

who determines the quality and quantity of oil on each lease. A report or "ticket" is made and signed by the gauger and lease man and copies are retained by each while an additional one is sent to the purchasing company's office. The purchasing company enters the report on its books and in a short time checks are made out individually to all parties interested in the transaction under what are termed division orders. A division order is a tabulated form including signed and sworn statements that the operator has a certain interest in a producing company or in a lease and that the landowner has a royalty, usually one-eighth of the oil. The division order is kept on file with the purchasing company. A producer can hold his oil in storage for two months, and at the expiration of that time checks are sent at the prevailing price. The purchasing company pro-rates its own leases as it does those of individual operators and issues royalty checks directly to the farmer. In all reports 3 per cent of the gauged oil is deducted for leakage, sediment and evaporation, which goes on continually until the oil reaches the refinery. This is a natural loss and is borne by all interested in the production.

The auditing department of the Ohio Oil Company, Marshall, Ill., has one of the most complete systems of its kind. The amount of work done by it is enormous, and its thoroughness is attested by the scarcity of complaints from either landowner or operator.

#### TRANSPORTING THE OIL.

The Ohio Oil Company is not a common carrier of oil, but is a buyer. The old system of carrying oil at a certain rate in addition to storage has disappeared. During 1907 and 1908 the Ohio Oil Company built an extensive system of gravity pipe-lines for collecting oil from the greater part of the field. E. C. Bolton, chief engineer, made thorough detailed surveys of all the leases and all the stream courses through or near the field. Advantage was taken of the slope of the streams and pipe-lines were laid along them. Branch lines were run to each lease so that the oil, when released from the lease tanks, flows by its own weight into the general stream main, and down its course to a sub-station, where it is caught and pumped back through a larger main to the head pumping station at Martinsville, Ill. There are thirteen sub-stations in the main fields and one at Sandoval, Ill., located as follows:

#### *Location of the Ohio Oil Company's Pumping Stations in Illinois.<sup>1</sup>*

Order	Station—name.	Section.	Township.	County.
1	Martinsville.....	7	Martinsville.....	Clark.....
2	Stoy.....	2	Oblong.....	Crawford (see Pl. XXV A).....
3	Bridgeport.....	9	Lawrence.....	Lawrence (see Pl. XXVI).....
4	Casey.....	17	Casey.....	Clark.....
5	Cumberland.....	23	Union.....	Cumberland.....
6	Muddy Creek.....	20	Petty.....	Lawrence.....
7	North Fork.....	1	Licking.....	Crawford.....
8	Martinsville Tank Farm.....	13	Casey.....	Clark.....
9	Bailey.....	29	Martin.....	Crawford.....
10	Muchmore.....	14	Oblong.....	do.....
11	Tracey.....	13	Lawrence.....	Lawrence.....
12	Ackman.....	6	Dennison.....	do.....
13	Shipman.....	11	Martin.....	Crawford.....
14	Sandoval.....	7	Sandoval.....	Marion.....

<sup>1</sup> Kindly furnished by D. Roach, chief of pipe-line department, Ohio Oil Co., Marshall, Ill.



A.



B.

A. The Ohio Oil Company's pumping station, Stoy, Ill.

B. The Tidewater Pipe Line Company's pumping station, Stoy, Ill.



Each station controls the area north of it to the next station. From the head station at Martinsville, the oil is pumped through one 12-inch and two 8-inch pipes across Indiana and Ohio to eastern refineries, and through one 8-inch to Alton, Ill. The inter-state pipe-lines are pumped in relays, with sub-stations at Jamestown and Montpelier, Ind., and at Lima, Ohio. Oil is pumped at about 600 pounds pressure in the lines.

Gravity has displaced the old donkey pump that was formerly required on each lease, except in the extreme northern end of the field. The gravity lines extend northward within  $2\frac{1}{2}$  miles south of Casey. The donkey pump is still used in this area. The Ohio Oil Company pays one cent per barrel to the producers for steam used. The efficiency of the gravity system is twice as great as with steam and the cost is one-third as great. The cost of transfer by the gravity system is borne by the Ohio Oil Company. A regular force of men, aside from the company's corps of surveyors is kept at work improving and repairing the lines. The company keeps apace with new development and supplies new lines at fast as they are needed.

The Ohio Oil Company maintains engineering and surveying, discharge, and telegraph departments in its general offices at Marshall, Ill. The engineering and surveying department surveys and outlines sites for pipe-lines, pumping stations, tank farms, power-houses, district supply-houses, etc. It makes all field, farm, tank-farm, road and pipeline maps. In fact, this branch of the work covers completely all the phases of work connected with civil engineering. It is occasionally called upon to make plans of specially needed machinery, or the construction of some special type of building. As yet these departments have done little toward determining structural relations of the formations and working out geological problems dependent upon this phase of work.

The discharge department has charge of the pumping of oil. This division merely regulates and checks the pumping of the oil into and through the interstate lines. The telegraph department of the company consists of a complete system of telegraph lines to all portions of the field, thus bringing its large force of employees into close touch with headquarters. Wires are also maintained and operated to eastern offices.

#### STORING THE OIL.

The production of the Illinois fields so far exceeds the capacity of pipe-lines that storage tanks have been established. Permanent tank farms are maintained at Martinsville, Stoy and Bridgeport. (See Pl. XXVII, A.) The sub-stations discharge the surplus oil to these tanks, where it lies until it can be pumped to the refineries. The Ohio Oil Company has 471 storage tanks which hold about 35,000 barrels each. These tanks are distributed in the oil producing counties of Illinois as follows:

Clark .....	235
Crawford .....	43
Lawrence .....	192
Marion .....	1
Total .....	471



The cost of each tank, including a circular dike for catching the oil in case the tank bursts or catches fire, is about \$9,000.00. The tanks are made of riveted steel plate, measuring  $\frac{1}{2}$  inch thick at the bottom and on the floor, and 3-16 inch thick at the top. They are 95 feet in diameter and 28 feet  $7\frac{1}{2}$  inches high. The floor space is 7,200 square feet. The total investment in tank-farms and equipment is about \$5,000,000.00. Other large companies maintain tanks, but they are scattered singly over the field.

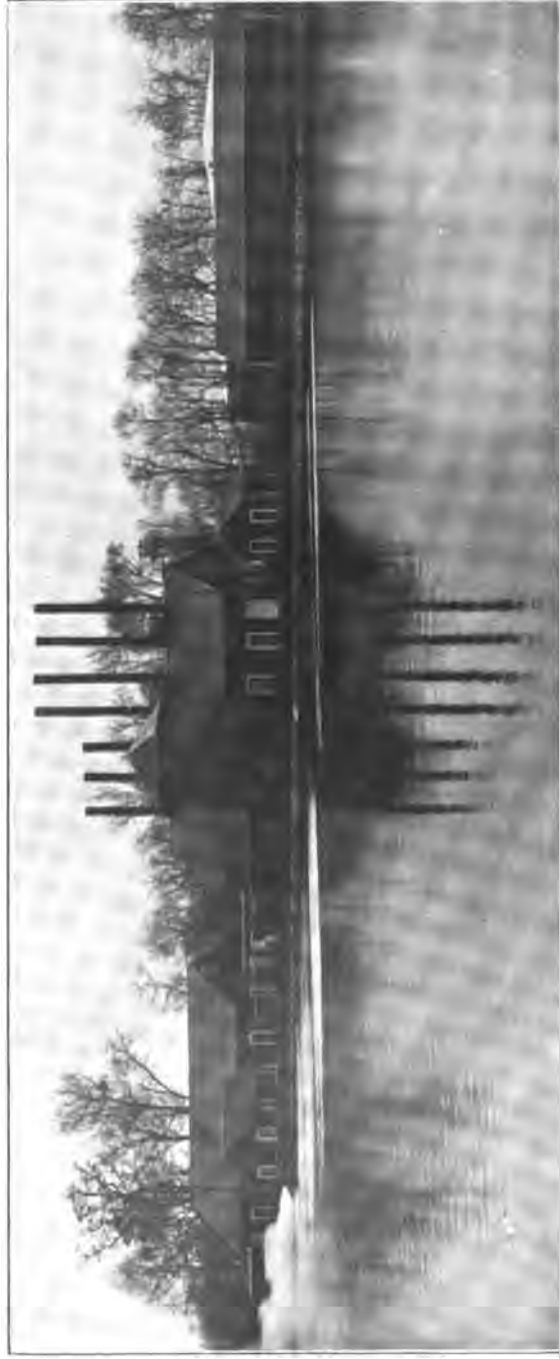
Lightning has occasional heavy losses on tank farms. At least one dozen tanks have been destroyed in the last two years. (See Pl. XXVIII.) Lightning pierces the tanks easily and sets fire to the gases and oils. In a short time the top of the tank drops in and the flames send up dense, black, curling smoke, which presents a most unusual and startling spectacle. It requires about 24 hours for the entire contents of a tank to boil over its sides and 50 hours for the fire to burn out. At the time of boiling the smoke and danger are greatest. If the wind should be blowing strongly, any buildings, timber, or nearby tanks would probably be destroyed. The Ohio Oil Company always rushes a large force of men to the scene of a fire and takes every precaution to minimize the loss by strengthening the dike and removing inflammable material. The nearest pumping station is called upon to connect with the burning tank and draw out as much oil as possible with safety, usually about half the amount in the tank. The loss by fire of a tank full of oil is about \$20,000.00. The heat thrown off from a tank fire is intense and the effect on the tank is disastrous. (See Pl. XXIX.)

#### INDEPENDENT OIL COMPANIES.

The independent operators and oil companies have been forced to rely on tank-cars for oil shipments until recently, or to sell to the Ohio Oil Company. Most of them have preferred the latter plan. The Tidewater Pipe Line Company, with the Associated Producers Oil Company, however, has recently built an 8-inch line into the field and constructed a pumping station near Stoy, Crawford county, with a capacity of about 25,000 barrels daily. (See Pl. XXV, B.)

The Pure Oil Company which has been a large producer in this field, is said to have bought right of way for a second independent pipe-line. The Indian Refining Company of Cincinnati and New York has over 500 tank cars and 30 distributing stations, with refineries at Georgetown, Ky., Lawrenceville, and East St. Louis, Ill.; a combined capacity of about 8,000 barrels per day. The Sun Oil Company ships by tank cars and sells its oil for fuel. The Missouri-Illinois Oil Co. operates in St. Louis, Mo. The Central Refining Company has a refinery at Lawrenceville and secures oil from its own leases. The other companies that make shipments from the fields are the Cornplanter Refining Company, W. F. Watson of Bridgeport, Ill., and Rogers and Dibble of Oil City, Pa. It is estimated that the independents are handling between 9,000 and 12,000 barrels of oil per day. The Robinson Oil Refining Co. maintained a small plant at Robinson until the latter part of 1908, when it fell into the hands of a receiver and has since been idle.





The Ohio Oil Company's pumping station, Bridgeport, Ill.

## PRICES AND PIPE-LINE RUNS OF ILLINOIS OIL.

## PRICES OF ILLINOIS OIL.

The price of Illinois oil increased steadily from the opening of the field in 1905 to July of 1906. From 1907 to November, 1909, the decline was gradual. The price then remained steady for 18 months and since May, 1911, has begun to increase. From 1905 to 1907 inclusive all oil sold at one price, varying from 60 to 83 cents per barrel. A grading and division in price took place in 1908. The better grades of oil were found to lie between 30 and 35° B, while that of the Duncanville pool lies between 22 and 23° B. The Duncanville oil is sold only for fuel. The development of the Tracey and McClosky sands in Lawrence county gave still higher grades of oil, varying from 35 to 39° B. The difference of gravities necessarily caused a division of price, and since 1908, oil above 30° B has commanded one price while that below 30° B has commanded another. The following table gives the average monthly prices paid for Illinois petroleum from 1905 to 1910, inclusive, as reported by Dr. D. T. Day and to January 1, 1912, the date of completion of this report, as supplied by the writer:

Average Monthly Prices of Illinois Petroleum, 1905-1911, Per Bbl.<sup>1</sup>

Month.	Year.									
	1905.	1906.	1907.	1908.		1909.		1910.		1911. <sup>2</sup>
				Above 30° B.	Below 30° B.	Above 30° B.	Below 30° B.	Above 30° B.	Below 30° B.	
January.....	.....	\$ .79	\$0.64	\$0.68	\$0.60	\$0.68	\$0.60	\$0.60	\$0.52	\$0.52
February.....	.....	.79	.65	.68	.60	.68	.60	.60	.52	.52
March.....	.....	.79	.67	.68	.60	.68	.60	.60	.52	.52
April.....	.....	.80	.68	.68	.60	.68	.60	.60	.52	.52
May.....	.....	.83	.68	.68	.60	.68	.60	.60	.52	.55
June.....	.....	.83	.68	.68	.60	.67	.59	.60	.52	.55
July.....	\$0.60	.82	.68	.68	.60	.63	.55	.60	.52	.55
August.....	.60	.71	.68	.68	.60	.62	.54	.60	.52	.55
September.....	.61	.64	.68	.68	.60	.62	.54	.60	.52	.55
October.....	.64	.64	.68	.68	.60	.61	.53	.60	.52	.57
November.....	.66	.64	.68	.68	.60	.60	.52	.60	.52	.57
December.....	.70	.64	.68	.68	.60	.60	.52	.60	.52	.57
Average.....	\$0.644	\$0.745	\$0.67375	\$0.68	\$0.60	\$0.64625	\$0.56625	\$0.60	\$0.52	\$0.5466

<sup>1</sup> Mineral Resources of the U. S., 1910, Part II, U. S. Geol. Survey, 1911, p. 387.<sup>2</sup> Compiled from files of the Oil City Derrick.



B.



A.

A. A portion of the Ohio Oil Company's tank farm, Stoy, Ill.  
B. A cleaning rig.



The Princeton, Indiana, Sandoval and Carlyle, Illinois oils are above 30° B. and are controlled by the market price of the better Illinois grades.

#### PIPE-LINE RUNS AND STOCKS OF ILLINOIS OIL.

The annual statistics of the production of petroleum in Illinois are compiled by Dr. D. T. Day of the U. S. Geological Survey and comprise the pipe-line runs of the Ohio Oil Company, Tidewater Pipe-line Company, and the Indian Refining Company, and the tank-car shipments of the Sun Oil Company, Cornplanter Refining Company, Indian Refining Company, Missouri-Illinois Oil Company, Central Refining Company, W. F. Watson of Bridgeport, Illinois, and Rogers and Dibble of Oil City, Pa. The actual production of oil is the amount which has been run from the producers tanks into the tanks of the transportation company, whether it is a railroad company or pipe-line, and from thence discharged through general pipe-lines to various refineries. The shipments recorded in the oil journals each month are used merely as a check to make accuracy more certain. The federal survey has in contemplation the collection of oil and gas statistics directly from the producer, thus placing a check on the general figures.

#### SUMMARY TABLES.

The total amount of oil produced previous to 1905, when the main fields were opened up, is almost negligible in comparison with the present annual production. The following brief table gives the yearly production from 1889 to 1911 inclusive:<sup>1</sup>

##### *Annual Production of Oil From Illinois Fields, 1889-1911.*

Year.	Bbls.
1889 .....	1,460
1890 .....	900
1891 .....	675
1892 .....	521
1893 .....	400
1894 .....	300
1895 .....	200
1896 .....	250
1897 .....	500
1898 .....	360
1899 .....	360
1900 .....	200
1901 .....	250
1902 .....	200
1903 .....	0
1904 .....	0
1905 .....	181,084
1906 .....	4,397,050
1907 .....	24,281,973
1908 .....	33,686,238
1909 .....	30,898,339
1910 .....	33,143,362
*1911 .....	31,317,038
Grand total .....	157,911,660

<sup>1</sup> Day, D. T., Mineral Resources of the U. S. for 1910, Part II, U. S. Geol. Survey, 1911, p. 331.

<sup>2</sup> Day, D. T., Mineral Resources of the U. S., calendar year 1911, advance chapter, 1912, p. 64.



The two following tables present the ranks of the various petroleum-producing states for the years 1905-1910:

*Rank of petroleum-producing States, with quantities and percentages produced by each, from 1905 to 1911, in barrels.*

State.	Rank.	Quantity.	Percentage.
1905. <sup>1</sup>			
California.....	1	33,427,473	24.81
Texas.....	2	28,136,189	20.89
Ohio.....	3	16,346,660	12.13
Kansas.....	4	12,013,495	8.92
Indian Territory.....			
Oklahoma.....	5	11,578,110	8.59
West Virginia.....	6	10,964,247	8.14
Indiana.....	7	10,437,195	7.75
Pennsylvania.....	8	8,910,416	6.61
Louisiana.....	9	1,217,337	.90
Kentucky.....			
Tennessee.....	10	1,117,582	.83
New York.....	11	376,238	.28
Colorado.....	12	181,084	.14
Illinois.....	13	8,454	.01
Wyoming.....	14	3,100	
Michigan.....			
Missouri.....			
Total.....		134,717,580	100.00
1906. <sup>2</sup>			
California.....	1	33,098,598	26.17
Kansas.....	2	21,718,648	17.17
Indian Territory.....			
Oklahoma.....	3	14,787,763	11.69
Ohio.....	4	12,567,897	9.93
Texas.....	5	10,256,893	8.11
Pennsylvania.....	6	10,120,935	8.00
West Virginia.....	7	9,077,528	7.18
Louisiana.....	8	7,673,477	6.07
Indiana.....	9	4,397,050	3.47
Illinois.....	10	1,243,517	.98
New York.....	11	1,213,548	.96
Kentucky.....			
Tennessee.....	12	327,572	.26
Colorado.....	13	7,000	.01
Wyoming.....	14	3,500	
Michigan.....			
Missouri.....			
Total.....		126,493,936	100.00
1907. <sup>3</sup>			
Oklahoma.....	1	45,933,649	27.65
Kansas.....	2	39,748,375	23.93
California.....	3	24,281,973	14.62
Illinois.....	4	12,322,696	7.42
Texas.....	5	12,207,448	7.35
Ohio.....	6	9,999,306	6.02
Pennsylvania.....	7	9,095,296	5.48
West Virginia.....	8	5,128,037	3.09
Indiana.....	9	5,000,221	3.01
Louisiana.....	10	1,212,300	.73
New York.....	11	820,844	.49
Kentucky.....			
Tennessee.....	12	331,851	.20
Colorado.....	13	9,339	.01
Utah.....	14	4,000	
Wyoming.....			
Michigan.....			
Missouri.....			
Total.....		166,095,335	100.00

<sup>1</sup> Griswold, W. T., Mineral Resources of the U. S. for 1906, U. S. Geol. Survey, 1907, p. 830.

<sup>2</sup> Day, D. T., Mineral Resources of the U. S. for 1907, Part II, U. S. Geol. Survey, 1908, p. 348.



A 35,000-barrel tank fire.

The two following tables present the ranks of the various petroleum-producing states for the years 1905-1910:

*Rank of petroleum-producing States, with quantities and percentages produced by each, from 1905 to 1911, in barrels.*

State.	Rank.	Quantity.	Percentage.	
1905. <sup>1</sup>				
California.....	1	33,427,473	24.81	
Texas.....	2	28,136,189	20.89	
Ohio.....	3	16,346,660	12.13	
Kansas.....	4	12,013,495	8.92	
Indian Territory.....				
Oklahoma.....	5	11,578,110	8.59	
West Virginia.....				
Indiana.....	6	10,964,247	8.14	
Pennsylvania.....	7	10,437,195	7.75	
Louisiana.....	8	8,910,416	6.61	
Kentucky.....	9	1,217,337	.90	
Tennessee.....				
New York.....	10	1,117,582	.83	
Colorado.....	11	376,238	.28	
Illinois.....	12	181,084	.14	
Wyoming.....	13	8,454	.01	
Michigan.....	14	3,100		
Missouri.....				
Total.....		134,717,580	100.00	
1906. <sup>2</sup>				
California.....	1	33,068,598	26.17	
Kansas.....	2	21,718,648	17.17	
Indian Territory.....				
Oklahoma.....	3	14,787,763	11.69	
Ohio.....				
Texas.....	4	12,567,897	9.93	
Pennsylvania.....	5	10,256,893	8.11	
West Virginia.....	6	10,120,935	8.00	
Louisiana.....	7	9,077,528	7.18	
Indiana.....	8	7,673,477	6.07	
Illinois.....	9	4,397,050	3.47	
New York.....	10	1,243,517	.98	
Kentucky.....	11	1,213,548	.96	
Tennessee.....				
Colorado.....	12	327,572	.26	
Wyoming.....	13	7,000	.01	
Michigan.....	14	3,500		
Missouri.....				
Total.....		126,493,936	100.00	
1907. <sup>3</sup>				
Oklahoma.....	1	45,933,649	27.65	
Kansas.....				
California.....	2	39,748,375	23.93	
Illinois.....	3	24,281,973	14.62	
Texas.....	4	12,322,696	7.42	
Ohio.....	5	12,207,448	7.35	
Pennsylvania.....	6	9,999,306	6.02	
West Virginia.....	7	9,095,296	5.48	
Indiana.....	8	5,128,037	3.09	
Louisiana.....	9	5,000,221	3.01	
New York.....	10	1,212,300	.73	
Kentucky.....	11	820,844	.49	
Tennessee.....				
Colorado.....	12	331,851	.20	
Utah.....	13	9,339	.01	
Wyoming.....				
Michigan.....	14	4,000		
Missouri.....				
Total.....		166,095,335	100.00	

<sup>1</sup> Griswold, W. T., Mineral Resources of the U. S. for 1906, U. S. Geol. Survey, 1907, p. 830.

<sup>2</sup> Day, D. T., Mineral Resources of the U. S. for 1907, Part II, U. S. Geol. Survey, 1908, p. 348.



A 35,000-barrel tank fire.



Table—Continued.

State.	Rank.	Quantity.	Percentage.
1908. <sup>1</sup>			
Oklahoma.....	1	45,798,765	25.65
California.....	2	44,854,737	25.13
Illinois.....	3	33,086,238	18.87
Texas.....	4	11,206,464	6.28
Ohio.....	5	10,858,797	6.08
West Virginia.....	6	9,823,176	5.33
Pennsylvania.....	7	9,424,325	5.28
Louisiana.....	8	5,788,874	3.24
Indiana.....	9	3,283,629	1.84
Kansas.....	10	1,801,781	1.01
New York.....	11	1,160,128	.65
Kentucky.....	12	727,767	.41
Colorado.....	13	379,653	.21
Wyoming.....	14	17,775	.01
Utah.....			
Missouri.....	15	15,246	.01
Michigan.....			
Total.....		178,527,355	100.00
1909. <sup>1</sup>			
California.....	1	55,471,601	30.28
Oklahoma.....	2	47,859,218	26.13
Illinois.....	3	30,898,339	16.87
West Virginia.....	4	10,745,092	5.87
Ohio.....	5	10,632,193	5.80
Texas.....	6	9,534,467	5.21
Pennsylvania.....	7	9,299,403	5.08
Louisiana.....	8	3,059,331	1.67
Indiana.....	9	2,296,086	1.25
Kansas.....	10	1,263,764	.69
New York.....	11	1,134,897	.62
Kentucky.....	12	639,861	.35
Colorado.....	13	310,861	.17
Wyoming.....	14		
Michigan.....	15	25,806	.01
Missouri.....	16		
Utah.....	17		
Total.....		183,170,874	100.00
1910. <sup>2</sup>			
California.....	1	73,010,560	34.84
Oklahoma.....	2	52,028,718	24.83
Illinois.....	3	33,143,362	15.82
West Virginia.....	4	11,751,871	5.61
Ohio.....	5	9,916,370	4.73
Texas.....	6	8,899,266	4.25
Pennsylvania.....	7	8,794,662	4.20
Louisiana.....	8	6,841,395	3.26
Indiana.....	9	2,159,725	1.03
Kansas.....	10	1,128,668	.54
New York.....	11	1,053,838	.50
Kentucky.....	12	468,774	.22
Colorado.....	13	239,794	.12
Wyoming.....	14		
Utah.....	15	119,045	.05
Michigan.....	16		
Missouri.....	17		
Total.....		209,556,048	100.00
1911. <sup>3</sup>			
California.....	1	81,134,391	36.80
Oklahoma.....	2	56,069,637	25.44
Illinois.....	3	31,317,038	14.21
Louisiana.....	4	10,720,420	4.86
West Virginia.....	5	9,795,464	4.44
Texas.....	6	9,526,474	4.32
Ohio.....	7	8,817,172	4.01

<sup>1</sup> Day, D. T., Mineral Resources of the U. S. for 1909, Part II, U. S. Geol. Survey, 1911, p. 304.<sup>2</sup> Day, D. T., Mineral Resources of the U. S. for 1910, Part II, U. S. Geol. Survey, 1911, p. 329.<sup>3</sup> Day, D. T., Mineral Resources of the U. S. for 1911, advance chapter, 1912, U. S. Geol. Survey, p. 10.







Table—Concluded.

State.	Rank.	Quantity.	Percentage.
1911.			
Pennsylvania.....	8	8,248,158	3.74
Indiana.....	9	1,695,289	.77
Kansas.....	10	1,278,819	.58
New York.....	11	952,515	.43
Kentucky.....	12	472,458	.22
Colorado.....	13	226,926	.10
Wyoming.....	14	194,690	.09
Missouri.....	15		
Utah.....	16		
Michigan.....	17		
Total.....		220,449,391	100.00

*Rank of petroleum-producing States, with value of production and percentage of each, from 1905-1911.*

State.	Rank.	Value.	Percentage.
1905. <sup>1</sup>			
Ohio.....	1	\$17,054,877	20.27
West Virginia.....	2	16,132,631	19.17
Pennsylvania.....	3	14,653,278	17.41
Indiana.....	4	9,404,909	11.18
California.....	5	8,201,846	9.74
Texas.....	6	7,552,282	8.97
Kansas.....	7	6,546,398	7.78
Indian Territory.....			
Oklahoma.....	8	1,601,325	1.90
Louisiana.....	9	1,557,630	1.85
New York.....	10	943,211	1.12
Kentucky.....			
Tennessee.....	11	337,606	.40
Colorado.....	12	116,561	.14
Illinois.....	13	54,865	.07
Wyoming.....			
Michigan.....			
Missouri.....			
Total.....		\$84,157,399	100.00
1906. <sup>1</sup>			
Ohio.....	1	\$16,997,000	18.39
Pennsylvania.....	2	16,596,943	17.95
West Virginia.....	3	16,170,293	17.49
Kansas.....	4	9,615,198	10.40
Indian Territory.....			
Oklahoma.....	5	9,553,430	10.34
California.....	6	6,770,066	7.32
Indiana.....	7	6,565,578	7.10
Texas.....	8	3,557,838	3.85
Louisiana.....	9	3,274,818	3.54
Illinois.....	10	1,995,377	2.16
New York.....	11	1,031,629	1.12
Kentucky.....			
Tennessee.....	12	282,675	.28
Colorado.....	13	53,890	.06
Wyoming.....			
Michigan.....			
Missouri.....			
Total.....		\$92,444,735	100.00
1907. <sup>2</sup>			
Oklahoma.....	1	\$18,478,658	15.38
Kansas.....	2	17,579,706	14.64
Pennsylvania.....			

<sup>1</sup> Griswold, W. T., Mineral Resources of the U. S., 1906, U. S. Geol. Survey, 1907, p. 830.

<sup>2</sup> Day, D. T., Mineral Resources of the U. S. 1907, Part II, U. S. Geol. Survey, 1908, p. 349.



The tank after the fire.



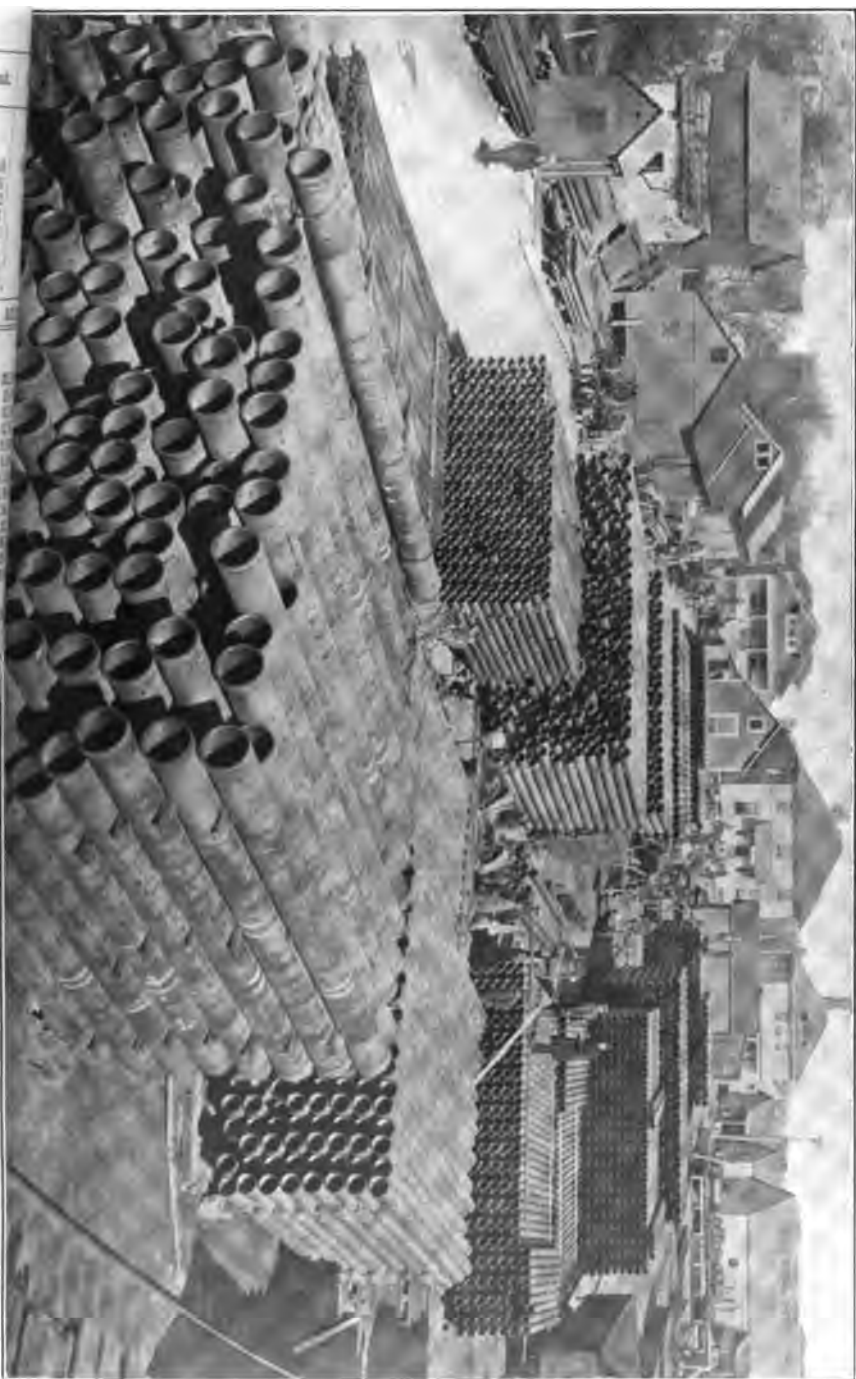


PLATE XXX

1904

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Fig. 8

Fig. 9

Fig. 10

Fig. 11

Fig. 12

Fig. 13

Fig. 14

Table—Concluded.

State.	Rank.	Value.	Percentage.
1910.			
New York.....	10	\$1,414,688	1.11
Kansas.....	11	444,763	.35
Kentucky.....	12	324,684	.25
Colorado.....	13	243,402	.20
Wyoming.....	14	98,330	.08
Utah.....	15		
Michigan.....	16		
Missouri.....	17		
Total.....		\$127,896,328	100.00
1911. <sup>1</sup>			
California.....	1	\$38,719,080	28.89
Oklahoma.....	2	26,451,767	19.73
Illinois.....	3	19,734,339	14.72
West Virginia.....	4	12,767,293	9.52
Pennsylvania.....	5	10,894,074	8.13
Ohio.....	6	9,479,542	7.07
Texas.....	7	6,554,552	4.89
Louisiana.....	8	5,668,814	4.23
New York.....	9	1,248,950	.93
Indiana.....	10	1,228,835	.92
Kansas.....	11	608,756	.45
Kentucky.....	12	328,614	.25
Colorado.....	13	228,104	.17
Wyoming.....	14	132,032	.10
Utah.....	15		
Missouri.....	16		
Michigan.....	17		
Total.....		\$134,044,752	100.00

The total production in Illinois, by months, for the last six years is given in the following table:<sup>2</sup>

Production of petroleum in Illinois, 1905-1911, by months, in bbls.

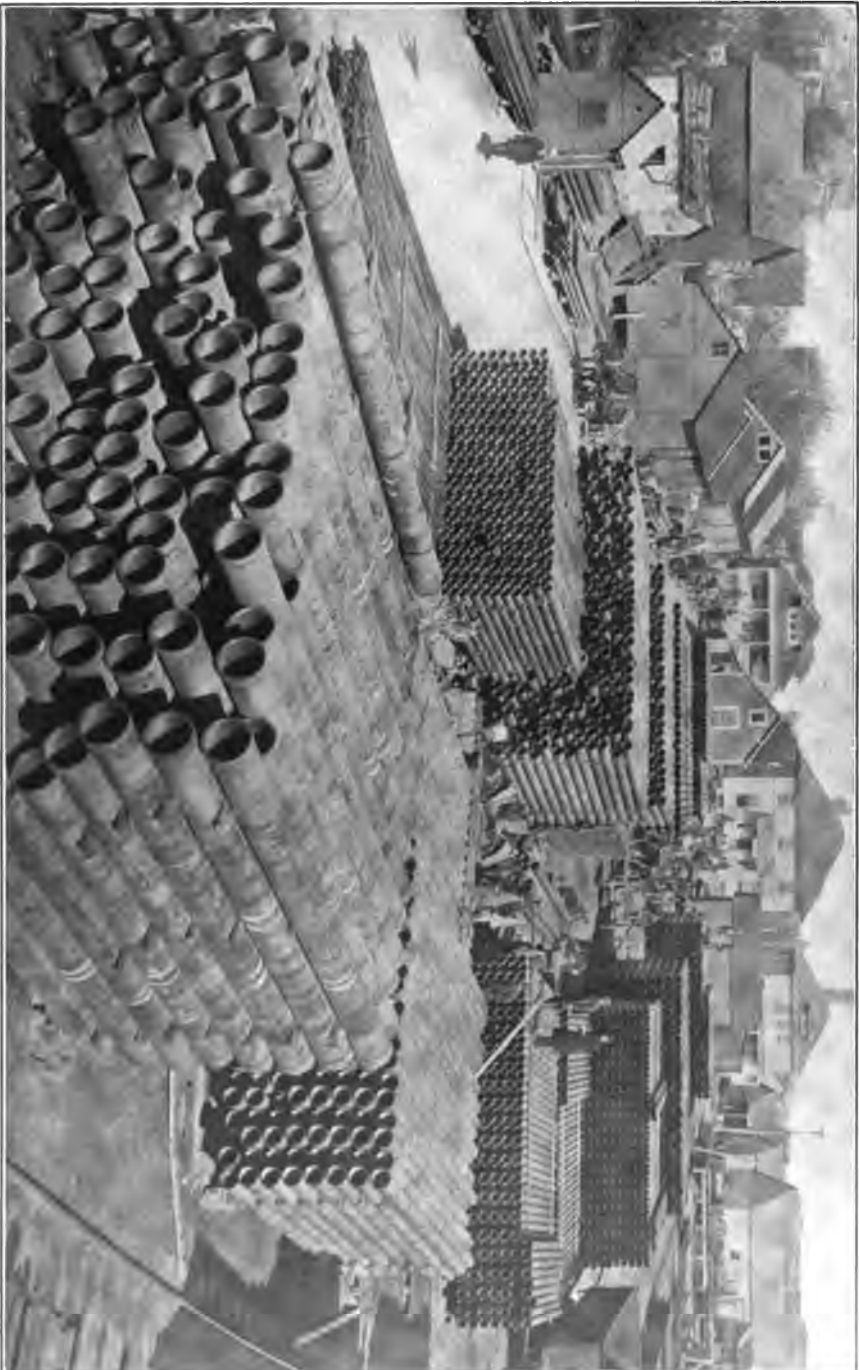
Month.	Year.						
	1905.	1906.	1907.	1908.	1909.	1910.	1911. <sup>3</sup>
January.....		55,680	781,812	2,703,973	2,668,607	2,640,303	2,578,579
February.....		65,208	956,399	2,572,115	2,510,548	2,353,684	2,373,229
March.....		19,352	1,547,325	2,825,491	2,757,794	2,865,055	2,790,515
April.....		102,862	1,874,465	3,249,690	2,562,215	2,776,800	2,560,963
May.....		267,746	2,138,918	3,223,515	2,829,277	2,860,760	2,731,965
June.....	6,521	410,655	1,879,362	3,081,848	2,670,549	2,746,620	2,634,521
July.....	17,306	610,401	2,422,192	2,693,288	2,728,857	3,029,787	2,740,654
August.....	23,827	778,464	2,446,042	2,808,667	2,719,958	3,007,151	2,770,946
September.....	26,586	722,168	2,605,663	2,675,385	1,902,197	2,850,119	2,615,120
October.....	27,589	463,819	2,863,812	2,709,913	2,560,072	2,768,750	2,638,927
November.....	34,611	350,985	2,510,146	2,479,926	2,497,847	2,629,132	2,400,970
December.....	44,644	549,710	2,255,839	2,662,427	2,490,418	2,615,201	2,480,949
Total.....	181,084	4,397,050	24,281,973	33,686,238	30,898,339	33,143,362	31,317,038

The following table shows the value of Illinois oil produced from 1905-1911:

<sup>1</sup> Day, D. T., Mineral Resources of the U. S., 1911, advance chapter, U. S. Geol. Survey, 1912, p. 10.

<sup>2</sup> Mineral resources of the U. S. for 1910, Part II, U. S. Geol. Survey, 1911, p. 385.

<sup>3</sup> Day, D. T., Mineral Resources of the U. S. for 1911, advance chapter, 1912, U. S. Geol. Survey, p. 64.



A supply yard in Bridgeport.



*Production and value of petroleum in Illinois, 1905-1911, in bbls.*

Year.	Production.			Total value.
	Ohio Oil Co.	Other lines.	Total quantity.	
1905.....	156,503	24,581	181,084	\$ 116,561
1906.....	4,385,471	11,579	4,397,050	3,274,818
1907.....	23,733,790	548,183	24,281,973	16,432,947
1908.....	31,972,634	1,713,604	33,686,238	22,649,561
1909.....	27,640,773	3,257,566	30,898,339	19,788,864
1910.....	27,751,090	5,392,272	33,143,362	19,669,383
1911.....	25,987,480	5,329,558	31,317,038	19,734,339
Total.....			157,905,084	\$101,666,473

The following table presents kind and amount of petroleum produced in Illinois from 1909 to 1911, in barrels:<sup>1</sup>

Year.	Light.	Heavy.	Total.
1909.....	28,049,468	2,848,871	30,898,339
1910.....	30,444,279	2,699,063	33,143,362
1911.....	29,103,220	2,213,818	31,317,038

The following table shows the pipe-line runs of the Ohio Oil Company in Illinois from 1905-1911, by months, in barrels:

*Pipe-line runs.<sup>2</sup>*

Month.	1905.	1906.	19 7.	1908.	1909.	1910.	1911. <sup>3</sup>
January.....		55,680	752,671	2,497,359	2,494,492	2,220,842	2,137,674
February.....		65,208	918,620	2,464,914	2,358,198	1,976,637	1,968,429
March.....		19,352	1,494,698	2,591,911	2,608,692	2,377,012	2,349,208
April.....		102,862	1,823,025	3,089,417	2,388,309	2,306,636	2,138,500
May.....		267,746	2,094,195	3,084,816	2,536,413	2,274,134	2,264,925
June.....	5,489	410,655	1,830,634	2,965,786	2,565,056	2,274,601	2,177,280
July.....	9,208	610,401	2,376,881	2,579,977	2,413,218	2,669,830	2,265,374
August.....	15,092	778,464	2,398,895	2,690,931	2,411,483	2,528,532	2,312,973
September.....	19,592	722,168	2,660,693	2,555,871	1,595,634	2,409,232	2,154,693
October.....	26,444	463,819	2,818,632	2,582,661	2,228,269	2,334,659	2,172,457
November.....	34,766	350,985	2,464,881	2,356,386	2,149,372	2,211,286	1,977,073
December.....	45,912	538,131	2,201,265	2,612,705	2,130,737	2,168,089	2,068,894
Total.....	156,503	4,385,471	23,733,790	31,972,634	27,640,773	27,751,090	25,987,480

The table below gives the gross stocks held by the Ohio Oil Company, and the eastern lines operating in Illinois from 1907 to 1911, by months, in barrels:

<sup>1</sup> Loc. cit.<sup>2</sup> Day, D. T., Mineral Resources of the U. S., 1910, Part II, U. S. Geol. Survey, 1911, p. 385.<sup>3</sup> Mineral Resources of the U. S., 1911, advance chapter, 1912, U. S. Geol. Survey, p. 65.







A.



B.

- A. A gas well.  
B. A gas well with a water retainer.



The following table shows the quantity of petroleum shipped by railroad from the Illinois oil fields, 1906 to 1911, by months. The amounts were estimated by Dr. D. T. Day of the U. S. Geological Survey, on the basis of 7.16 pounds to the gallon in 1906, and from 296.476 to 321.17 pounds to the barrel in 1907 to 1911:

*Rail shipments of oil from Illinois, 1906-1911, by months.*

Month.	1906. <sup>1</sup>	1907. <sup>2</sup>	1908. <sup>3</sup>	1909. <sup>4</sup>	1910. <sup>5</sup>	1911. <sup>5</sup>
January.....	60,134	8,701	91,807	144,511	220,856	228,404
February.....	51,358	14,598	71,170	111,407	217,917	224,856
March.....	16,009	23,947	132,300	152,056	263,056	254,927
April.....	35,539	42,249	118,074	109,872	257,292	347,530
May.....	160,121	158,227	84,290	157,783	283,285	338,324
June.....	358,039	166,644	122,317	183,432	285,096	329,621
July.....	515,956	322,622	107,688	158,642	276,533	311,681
August.....	534,821	223,134	70,171	166,943	277,317	297,784
September.....	368,625	70,555	83,042	173,509	253,788	238,917
October.....	162,547	56,570	102,163	200,067	213,217	292,004
November.....	48,747	56,080	138,147	198,044	287,750	263,627
December.....	30,843	66,692	126,967	185,166	234,819	285,082
Total.....	2,342,739	1,210,019	1,248,136	1,941,432	3,070,925	3,407,757

<sup>1</sup> Shipments were made from loading racks at Bridgeport, Oilfield and Stoy. The railroads were the Vandalia; the Baltimore & Ohio; the Cincinnati, Hamilton & Dayton; and the Indianapolis Southern.

<sup>2</sup> Shipments were made from loading racks at Duncansville, Lawrenceville, Stoy, Robinson, Bridgeport, Oilfield and Casey. The railroads were the Vandalia; the Baltimore & Ohio; the Cincinnati, Hamilton & Dayton; the Indianapolis Southern and the Cleveland, Cincinnati, Chicago & St. Louis.

<sup>3</sup> Shipments were made from Duncansville, Lawrenceville, Stoy, Robinson, Bridgeport, Sparta and Casey. The railroads were the Vandalia; the Baltimore & Ohio; the Illinois Southern; the Indianapolis Southern; and the Cleveland, Cincinnati, Chicago & St. Louis.

<sup>4</sup> Shipments were made from Duncansville, Flat Rock, Lawrenceville, Stoy, Robinson, Bridgeport, Casey, and Sparta, the same railroads shipping in 1909 as in 1908. The number of tank cars shipped in 1909 was 11,820.

<sup>5</sup> Shipments were made from Duncansville, Flat Rock, Lawrenceville, Stoy, Sandoval, Bridgeport, Casey and Sparta, the same railroads shipping in 1910 as in 1908 and 1909. The number of tank cars shipped in 1910 was 17,049.

The following table gives the statistics of field operations since 1905:

Number of wells completed and the total and average initial petroleum of new wells in Illinois, 1906-1911, by counties.<sup>1</sup>

County.	Completed.						Productive.						Dry.					
	1906.	1907.	1908.	1909.	1910.	1911. <sup>a</sup>	1906.	1907.	1908.	1909.	1910.	1911. <sup>a</sup>	1906.	1907.	1908.	1909.	1910.	1911. <sup>a</sup>
Bond.....	1,337	1,176	385	181	7	10	1,173	975	298	134	1	41	164	201	87	47	6	10
Clark.....	65	56	9	12	5	172	51	45	8	9	4	123	14	11	1	3	32	27
Clinton.....	1,090	2,640	2,322	2,093	1,210	481	896	2,464	1,986	1,738	950	369	164	376	336	355	290	112
Crawford.....	558	152	42	33	17	14	506	139	31	23	13	7	53	13	11	10	4	5
Cumberland.....	37	25	9	6	2	1	21	11	7	2	Edgar.....	7	16	14	2	4	2	1
Edgar.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jackson.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jasper.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lawrence.....	176	691	702	724	669	523	143	621	684	668	584	466	33	70	78	56	95	57
Macoupin.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Madison.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Marion.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Martin.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Randolph.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Saline.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Miscellaneous.....	50	48	45	33	33	30	4	5	5	1	1	2	46	43	40	33	32	26
Total.....	3,283	4,988	3,574	3,151	2,139	1,304	2,793	4,260	3,019	2,593	1,671	1,057	490	728	555	558	468	305

<sup>1</sup> Day, D. T., Mineral Resources of the U. S. for 1910, Part II, U. S. (Geol. Survey, 1911, pp. 387-388).<sup>2</sup> Compiled from files of Oil City Derrick.<sup>3</sup> Includes 75 gas wells.<sup>4</sup> Includes 41 gas wells.

Number of Wells Completed—1906-1911—Concluded.

County.	Total Initial production.					Average initial production per well.						
	1906.	1907.	1908.	1909.	1910.	1911. <sup>1</sup>	1906.	1907.	1908.	1909.	1910.	1911.
Bond.....	31,060	20,385	6,953	3,219	25	811	26.5	20.9	23.3	24.0	25.0	19.7
Clark.....	279	314	122	95	65	11,981	5.5	7.0	15.3	10.6	22.8	94.9
Coles.....	59,204	84,163	46,694	44,379	26,382	9,802	66.1	34.2	23.5	25.5	16.2	5.0
Crawford.....	15,115	3,612	303	558	162	125	29.9	26.0	9.8	24.3	27.8	26.5
Cumberland.....	101	118	45	10	4	.....	4.8	10.7	6.4	5.0	12.4	17.8
Edgar.....	.....	.....	.....	3	.....	.....	.....	.....	.....	3.0	.....	.....
Jackson.....	.....	.....	.....	50	40	20	.....	.....	.....	.....	.....	.....
Jasper.....	7,230	30,543	24,793	41,056	61,015	40,432	50.6	49.2	36.2	61.5	10.0	6.6
Lawrence.....	.....	.....	.....	5	.....	7	.....	.....	.....	.....	102.7	86.7
Maccoupin.....	.....	.....	.....	10	.....	.....	.....	.....	.....	.....	.....	.....
Madison.....	.....	.....	.....	223	3,760	4,025	.....	.....	.....	10.0	.....	.....
Marion.....	.....	.....	.....	145	.....	.....	.....	.....	.....	37.2	110.6	91.4
Randolph.....	.....	.....	.....	3	.....	.....	.....	.....	.....	72.5	.....	.....
Saline.....	23	28	50	.....	5	6	5.8	5.6	10.0	3.0	5.0	3.0
Miscellaneous.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	113,012	139,163	78,960	89,756	93,256	66,919	40.5	32.7	26.2	34.6	55.5	63.3

<sup>1</sup> Compiled from files of Oil City Derrick.

Number of wells completed in Illinois, 1906-1911, by months.<sup>1</sup>

Year.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1906.....	253	356	351	108	253	359	435	496	449	453	376	354	3,283
1907.....	303	403	387	337	403	639	521	461	400	363	430	334	4,988
1908.....	303	187	197	197	284	390	474	417	344	290	273	278	3,574
1909.....	213	224	216	203	321	342	346	303	282	242	223	176	3,151
1910.....	111	158	128	157	192	211	172	235	234	198	177	166	2,139
1911.....	104	86	71	81	117	147	127	146	138	107	129	108	1,364

<sup>1</sup> Day, D. T., Mineral Resources of the U. S. in 1910, Part II, U. S. Geol. Survey, 1911, p. 388.Number of dry holes drilled in Illinois, 1906-1911, by months.<sup>1</sup>

Year.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1906.....	41	55	60	20	37	41	69	82	69	47	64	61	490
1907.....	55	22	37	40	35	75	72	45	62	82	80	52	728
1908.....	41	47	45	33	45	54	65	55	49	51	47	52	555
1909.....	17	43	29	38	43	53	50	57	50	48	52	32	558
1910.....	22	25	15	16	33	43	43	47	48	30	39	38	468
1911.....							26	27	38	17	25	18	205

<sup>1</sup> Day, D. T., Mineral Resources of the U. S. for 1910, Part II, U. S. Geol. Survey, 1911, p. 388.<sup>2</sup> Includes 75 gas wells.<sup>3</sup> Includes 41 gas wells.Total initial daily production of new wells in Illinois, 1906-1911, by months, in barrels.<sup>1</sup>

Year.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1906.....	9,433	9,842	10,392	3,736	8,137	17,148	15,262	22,432	9,705	14,039	10,611	11,942	112,012
1907.....	6,144	3,329	4,133	11,083	13,329	18,807	17,375	11,240	10,967	8,157	9,780	8,758	139,163
1908.....	5,080	4,833	5,018	4,285	6,628	9,856	9,475	8,322	7,848	6,091	6,242	6,607	78,960
1909.....	5,331	6,940	5,963	5,237	7,681	9,050	9,820	8,661	8,324	8,904	9,628	7,540	89,756
1910.....	5,677	3,512	3,909	7,460	8,091	9,267	6,386	10,042	8,419	10,133	8,832	7,052	93,256
1911.....				5,587	5,132	5,850	9,058	7,578	6,576	4,782	5,826	3,432	66,919

<sup>1</sup> Loc. cit.

*Petroleum field report in 1910, by counties.*

County.	Wells.			Acreage.		
	Productive, Dec. 31.	Abandoned	Drilling, Dec. 31.	Fee.	Lease.	Total.
Clark.....	2,341	124	.....	1,065	58,515	59,580
Coles.....	67	1	.....	140	575	715
Crawford.....	6,652	217	15	913	102,737	103,650
Cumberland.....	677	4	.....	.....	6,221	6,221
Edgar.....	6	1	.....	530	80	610
Jersey.....	.....	.....	.....	.....	.....	.....
Lawrence.....	2,411	38	30	329	80,615	80,944
Macoupin.....	.....	.....	1	.....	23,793	23,793
Madison.....	.....	.....	.....	.....	11,486	11,486
Marion.....	12	.....	4	407	35,920	35,920
Randolph.....	5	.....	.....	.....	493	900
Miscellaneous (undevel'd).....	.....	.....	.....	.....	84,760	84,760
Total.....	12,171	385	50	3,384	406,195	406,579

On January 1, 1912, it was estimated that 19,982 wells had been drilled in Illinois. Of these 3, 152 or 15.7 per cent were barren. There were 84 wells abandoned in 1910 and 198 in 1911. The abandonment of wells in the shallow fields has been under way since 1909 and is gradually growing as the sands are exhausted. Unless new wells from deeper pay sands or the extension of portions of the area are developed this field will probably be completely abandoned by the close of 1913. The deeper field of Crawford county is showing a decline, but its life will be much longer.

## NATURAL GAS IN ILLINOIS.

Illinois produces a very small amount of natural gas in proportion to the immense quantities of petroleum. Her rank is eighth among gas producing states with the following preceding her in order: 1, West Virginia; 2, Pennsylvania; 3, Ohio; 4, Kansas; 5, Oklahoma; 6, New York; 7, Indiana. The principal gas areas lie within the oil fields and the supply is used, chiefly, for field operations. Gas is used for domestic purposes in the towns within the oil belt and in several others near the fields. Gas is sold in Lawrenceville, Bridgeport, Pinkstaff, Birds, Flat Rock, Oblong, Palestine, Robinson, New Hebron, Porterville, Stoy, Hutsonville, Annapolis, Casey, Westfield and Martinsville, all being in or near the oil fields. Outside towns, such as Marshall, Vincennes, Indiana, Olney, and Sumner, are connected by direct mains with the fields. The majority of active oil wells produce small amounts of gas, which is collected in gas tanks on each lease. There are, however, several areas within the fields that yield high pressure gas wells, and these serve the commercial demand for the fuel. (See Pl. XXXI.) Such areas lie near Bellair, Hardinville in Honey Creek township, and north of Bridgeport. The gas comes, seemingly, in each case, from raised portions of the oil horizon. The following brief table shows the approximate depths of gas sands and the accompanying pressures:



## Record of consumption of natural gas from Illinois, 1908 to 1910.

Year.	Num-ber of pro-ducers having gas wells.	Consumers.		Gas consumed.								
		Domestic.	Indus-trial	Domestic.			Industrial.			Total.		
				Quan-tity M cu. ft.	Cents per M cu. ft.	Value.	Quan-tity M cu. ft.	Cents per M cu. ft.	Value.	Quan-tity—M cu. ft.	Cents per M cu. ft.	Value.
1908.....	185	7,377	204	1,050,252	18.5	\$194,859	3,928,027	6.4	\$251,218	4,978,879	8.96	\$446,077
1909.....	194	8,458	518	1,270,421	19.5	248,318	7,202,439	5.5	396,083	8,472,860	7.61	644,401
1910.....	207	10,109	479	1,266,057	21.9	278,377	5,457,229	6.1	335,265	6,723,266	9.13	613,642

## APPENDIX—TABLES OF WELL DATA.

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## Crawford County—Honey Creek Township.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
2—	N. W.	1 Unknown.	Wesley, No. 1.	528							Dry	No record.
3—	N. E.	1 Shaffer.	Parker, No. 1.	605		962		372	1,128		Gas	do.
	S. W.	1 Harrington & Co.	Goff, No. 1.	590		790		210	1,200	1,000	Dry	Salt water, 970 feet.
												Gas, 700 feet, 250 pounds pressure.
	S. E.	1 Shaffer.	Wesley, No. 1.	580		832		252	1,248			Gas, 832 feet, 250 pounds pressure.
					Robinson.	980		400	1,100		Gas	Gas, 980 feet, 400 pounds pressure.
5—		2 Murphy.	Maxwell, No. 1.	541		830	80	289	1,211	850	Gas	Gas, 830 feet.
	N. W.	1 Riddle.	Mann, No. 14.	464	Robinson-1.	864	19	400	1,100		100	
		2 Riddle.	Mann, No. 13.	473	Robinson-2.	910	19	446	1,054			
		3 Red Bank.	Allison, No. 1.	477	Robinson-1.	870	5	397	1,103			
		4 Shaffer.	Price, No. 1.	477	Robinson-2.	919	10	446	1,054		100	
		5 Shaffer.	Price, No. 4.	482	do.	925	35	448	1,052		50	
		6 Shaffer.	Price, No. 2.	472	do.	923	21	441	1,054	931	Light	Gas, 930 feet.
		7 Shaffer.	Price, No. 5.	492	do.	915	5	443	1,057	915	Dry	Well abandoned.
		8 Shaffer.	Price, No. 3.	496	Robinson-1.	905	5	419	1,081	1,000	Dry	No record.
	S. E.	1 Whitehall & Fritz.	Moore, No. 1.	536	Stray.	928		392	1,108	936	Dry	Gas, 932 feet.
		2 Pease.	Smith, No. 1.	511	Robinson-3.	1,010		499	1,001		Dry	Salt water.
6—												
	N. E.	1 Riddle.	Mann, No. 12.	490	Robinson-1.	844		394	1,116	850	300	Gas, 844 feet.
					Robinson-2.	886	17	426	1,074			
					do.	908	37	448	1,052			
		2 Riddle.	Mann, No. 11.	476	Stray.	847	15	371	1,120	847	Light	
		3 Red Bank.	Allison, No. 2.	478	Robinson-1.	877		401	1,099		200	
					do.	887	6	409	1,091		Dry	



## Crawford County—Honey Creek Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Total depth—feet.	Oil depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
6— N. W.	11	Ohio.....	G. Kersey, No. 1.....	464	814	26	350	1,150	820		50	Gas, 814 feet.
	12	Ohio.....	G. Kersey, No. 2.....	462	835	17	421	1,079	890		25	Gas, 855 feet.
	13	Riddle.....	Mann, No. 20.....	470	835	15	423	1,077	890			
	14	Riddle.....	Mann, No. 15.....	477	835	30	415	1,085			500	Show
	15	Riddle.....	Mann, No. 10.....	488	918	28	374	1,126	899			
	16	Riddle.....	Mann, No. 9.....	496	925	15	437	1,063				
	1	Ohio.....	Frost, No. 1.....	484	938	28	370	1,130			40	Dry Salt water.
	2	Devonian.....	Frost, No. 1.....	481	845	5	439	1,061	951	1,212		Salt water, 958 feet.
	3	Devonian.....	Frost, No. 4.....	497	845	22	348	1,152				Gas, 845 feet.
	4	Devonian.....	Frost, No. 2.....	487	894	46	372	1,063	982		Gas	Gas, 938 feet.
	5	Devonian.....	Frost, No. 3.....	492	899	12	389	1,111	929		Show	
	1	Treat, Crawford & Treat.	Boyd, No. 8.....	483	876	43	365	1,135			Light	
	2	Treat, Crawford & Treat.	Boyd, No. 9.....	506	857	7	365	1,123	1,017			No sands.
	3	Treat, Crawford & Treat.	Boyd, No. 5.....	494	869	148	377	1,123	914		Light	Light Well abandoned.
	4	Treat, Crawford & Treat.	Boyd, No. 4.....	481	863	40	380	1,120			20	Gas, 845 feet.
	5	Ohio.....	Boyd, No. 1.....	481	864	46	370	1,130	884		Dry	Salt water.
S. E.	6	Ohio.....	Boyd, Hrs. No. 2.....	488	845	55	364	1,136	894			
	7	Ohio.....	Boyd, Hrs. No. 3.....	482	860	15	372	1,085	862		Dry	Salt water.
					887	13	405	1,085	887		25	



## Crawford County—Honey Creek Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face ele-va-tion—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum—feet.				
15— N. E.	12	Craig & Lowrie.	R. Weger, No. 1.	581	Robinson-1.	998	35	417	1,083	1,010	1,033		Quit in sand.
	13	Craig & Lowrie.	R. Weger, No. 4.	585	do.	980	52	395	1,155	1,013	1,032		do.
	13	Shaffer.	H. Parker, No. 2.	582	Robinson-2.	1,026	37	414	1,086	1,026			Well abandoned.
	13	Shaffer.	H. Parker, No. 13.	584	Robinson-1.	1,010	33	416	1,084	1,026			
	16	Shaffer.	H. Parker, No. 11.	586	do.	1,001	18	413	1,087	1,011			
	17	Shaffer.	H. Parker, No. 10.	590	do.	1,005	20	408	1,085	1,005			
	18	Shaffer.	H. Parker, No. 12.	595	do.	985	17	400	1,100	1,000	1,012		Quit in sand.
	19	Shaffer.	H. Parker, No. 9.	591	do.	992	23	401	1,099	992			
	20	Shaffer.	H. Parker, No. 6.	585	do.	1,005	15	420	1,080	1,010	1,020		Quit in sand.
	21	Shaffer.	H. Parker, No. 22.	582	do.	974	20	392	1,108	974			
	22	Shaffer.	H. Parker, No. 25.	580	do.	994	13	418	1,092	994	1,014		Quit in sand.
N. W.	23	Shaffer.	H. Parker, No. 15.	578	do.	963	13	413	1,085	963	1,006		do.
	24	Shaffer.	H. Parker, No. 21.	577	do.	1,000	17	423	1,077	1,000			Quit in sand.
	2	Shaffer.	H. Parker, No. 3.	581	do.	944	19	383	1,117	935	993		do.
	3	Shaffer.	H. Parker, No. 23.	578	Robinson-2.	1,004	13	426	1,044	1,004	1,019		Quit in sand.
	4	Shaffer.	H. Parker, No. 5.	574	do.	1,000	20	428	1,074	1,000			do.
	5	Shaffer.	H. Parker, No. 24.	563	Robinson-1.	991	18	423	1,074	991			Quit in sand.
	6	Shaffer.	H. Parker, No. 14.	563	do.	994	24	431	1,069	994	1,022		Quit in sand.
	7	Shaffer.	H. Parker, No. 1.	568	do.	967	30	399	1,101				Quit in sand.
	8	Shaffer.	H. Parker, No. 8.	514	do.	958	30	441	1,086	952	993		do.
	9	Shaffer.	J. Weger, No. 11.	546	do.	977	19	431	1,069	977	996		Salt water, 989 feet.
	10	Shaffer.	J. Weger, No. 9.	549	do.	944	30	435	1,065	944			
	11	Shaffer.	J. Weger, No. 10.	542	do.	973	34	431	1,069	983			
S. W.	1	Shaffer.	J. Weger, No. 2.	569	do.	978	34	409	1,091	978			
	2	Shaffer.	G. Parker, No. 5.	593	do.	1,012	36	419	1,081	1,030			
	3	Shaffer.	G. Parker, No. 6.	579	do.	1,003	34	424	1,076	1,003			
	4	Shaffer.	G. Parker, No. 4.	585	do.	1,010	33	425	1,075	1,017	1,043		Quit in sand.
	5	Shaffer.	G. Parker, No. 2.	573	do.	963	39	420	1,080	963	1,032		do.
	6	Shaffer.	G. Parker, No. 3.	580	do.	1,003	36	423	1,077	1,003	1,039		do.
	7	Shaffer.	G. Parker, No. 1.	587	do.	1,006	46	419	1,081	1,006	1,052		do.
	8	Ohio.	Sequist, No. 1.	582	do.	1,008	37	426	1,074				
			Sequist, No. 2.	564	do.	965	30	421	1,079				

9 Ohio.....	Sequist, No. 3.	553	Robinson-1.	989	23	431	1,060	Salt water.	100
10 Ohio.....	Sequist, No. 4.	544	do.	980	44	416	1,064	50	
11 Ohio.....	Sequist, No. 5.	573	do.	988	8	423	1,077		
12 Red Bank	Johnson, No. 8.	552	do.	983	28	406	1,064		
13 Red Bank	Johnson, No. 7.	528	do.	985		430	1,070		
14 Red Bank	Johnson, No. 9.	540	Robinson-2	988	20	436	1,037	1,011	Quit in sand
15 Red Bank	Johnson, No. 1.	538	Robinson-1	976		377	1,123	50	Gas, 915 feet.
16 Red Bank	Johnson, No. 5.	548	do.	981	15	423	1,077	964	
17 Red Bank	Johnson, No. 2.	537	do.	983	32	437	1,063	990	200
18 Red Bank	Johnson, No. 4.	561	Robinson-2	1,007	13	470	1,030	967	50
19 Red Bank	Johnson, No. 3.	556	Robinson-1	980	30	419	1,081	964	100
20 Shafter	Ford, No. 1.	538	do.	982	48	386	1,064		
21 Shafter	Ford, No. 2.	543	do.	967	52	424	1,078		Quit in sand
22 Shafter	Ford, No. 5.	526	do.	960	38	434	1,068	971	
23 Shafter	Ford, No. 4.	537	Robinson-2	983	34	438	1,042	960	Quit in sand
24 Shafter	Ford, No. 3.	562	Robinson-1	988	17	426	1,074	96	
25 Shafter	Vinsel, No. 4.	577	do.	1,001	20	424	1,078	1,001	Quit in sand
26 Shafter	Vinsel, No. 1.	572	do.	980	42	418	1,082	1,018	
27 Shafter	Vinsel, No. 2.	571	do.	1,000	29	429	1,071	1,009	Quit in sand
28 Shafter	Vinsel, No. 6.	578	do.	1,008	23	431	1,069	1,009	Quit in sand
29 Shafter	Vinsel, No. 12.	583	do.	983	28	402	1,068	990	
30 Shafter	Vinsel, No. 11.	586	do.	985	34	397	1,033	943	Quit in sand
1 Shafter	Vinsel, No. 2.	581	do.	1,008	35	423	1,077	1,014	Quit in sand
2 Shafter	Vinsel, No. 1.	583	do.	1,006	18	438	1,062	965	
3 Shafter	Mall, No. 1.	557	do.	965	32	420	1,080	1,006	
4 Shafter	H. Parker, No. 7.	586	do.	1,006	22	430	1,070	984	
5 Shafter	H. Parker, No. 20.	574	do.	984	22	442	1,038	963	
6 Shafter	H. Parker, No. 19.	551	do.	983	21	415	1,085	965	
7 Shafter	H. Parker, No. 18.	565	do.	990	21	428	1,071	990	Quit in sand
8 Shafter	H. Parker, No. 17.	561	do.	990	16	427	1,073	990	15 Salt water 976 feet.
1 Ohio.....	Darone, No. 2.	533	do.	973	13	453	1,067	973	150 Salt water, 986 feet.
2 Ohio.....	Darone, No. 1.	540	do.	961		468	1,045		Dry
1 Red Bank	G. Weger, No. 1.	493	do.	980		518	985	1,028	Salt water, 1,028 feet.
2 Pease & Co.	Ford, No. 1.	475	Robinson-3	984	26	440	1,060	994	Quit in sand
1 Shafter	J. Weger, No. 7.	554	Robinson-1	969	25	438	1,066	966	987
2 Shafter	J. Weger, No. 6.	531	do.	966	21	434	1,066	966	Quit in sand
3 Shafter	J. Weger, No. 5.	532	do.	940	22	428	1,072		2 Salt water, 962 feet. Well abandoned.
4 Red Bank	J. Goff, No. 2.	512	do.	980		464	1,036	985	Well abandoned.
5 Red Bank	J. Goff, No. 1.	496	Robinson-2	969	20	452	1,048	969	
6 Shafter	J. Weger, No. 4.	517	do.	980	28	448	1,032	980	
7 Shafter	J. Weger, No. 3.	532	Robinson-1	991	40	439	1,061	991	100
8 Shafter	Weger, No. 1.	552	do.	991	40	447	1,053	1,002	50 Salt water, 1,004 feet.
9 Ohio.....	G. Parker, No. 1.	552	do.	985	23	441	1,069	990	40 Salt water, 995 feet.
10 Ohio.....	G. Parker, No. 5.	544	do.	973	36	445	1,055	973	
11 Ohio.....	G. Parker, No. 4.	528	do.	978	30	430	1,070	980	
12 Ohio.....	G. Parker, No. 2.	548	do.	987	36	439	1,061	1,006	100

S. E.

16—  
N. E.

S. W.

S. E.



## Crawford County—Honey Creek Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.	Name.				
16—S. E...	13 Ohio		G. Parker, No. 3	538	1,001	27	463	1,037	1,001			40 Salt water, 1,028 feet	
	14 Ohio		G. Parker, No. 6	530	998	5	458	1,042	998			10 Salt water, 1,003 feet	
	15 Ohio		A. Goff, No. 3	516	961	23	445	1,055	965			40 Salt water, 984 feet	
	16 Ohio		A. Goff, No. 1	516	966	29	450	1,050	966			50 Salt, water 995 feet	
	17 Ohio		A. Goff, No. 2	490	931		441	1,059	931			30 Salt water, 965 feet	
17—N. E...	1 Red Bank		Jewel, No. 1	466	958		492	1,008				Dry Salt water, 975 feet	
18—N. W...	1 Ohio		Baker, No. 1	467	1,080	9	613	887				Dry Salt water, 1,080 feet	
19 (N)—S. W...	2 Ohio		Mann, No. 1	435						1,420		Dry No sands.	
S. E...	1 Red Bank		Maxwell, No. 1	475	800	10	325	1,175				Gas T. 6 N. R. 12 W.	
	2 Red Bank		Garrard, No. 2	487	830	15	355	1,145	830			10 Gas well	
	1 Red Bank		Garrard, No. 1	480	860	51	373	1,127				Gas 1,000,000 cu. feet gas daily	
20 (S)—N. E...					951	20	471	1,029				Gas 2,000,000 cubic feet gas daily	
	1 Ohio		Stephenson, No. 1	438	881	82	453	1,047		973		Dry Salt water, 943 feet. T. 5 N., R. 12 W.	
	1 Ohio		Darnold, No. 1	455	1,028		573	927		1,083		Dry Salt water, 1,028 feet	
N. W...	1 Ohio		Eagleton, No. 1	506	890	8	384	1,116				Gas Gas, 892 feet	
	2 Ohio		P. Frost, No. 1	497	925	20	428	1,072				T. 6 N., R. 12 W.	
	1 Ohio		Rodrick, No. 1	480	975	18	472	1,028		1,227		Gas Gas, 976 feet	
S. E...	1 Ohio		G. Parker, No. 6	534	982		448	1,052	987	1,002		Dry Salt water, 970 feet	
21—N. E...												25 Salt water, 1,002 feet, T. 5 N., R. 12 W.	
22—N. E...	1 Ohio		Mann, No. 1	572							1,102	Dry No sands. Salt water, 1,065 feet	
N. W...	1 Murphy		T. Parker, No. 3	544	986		442	1,058		998		Dry Salt water, 998 feet	





7 Ohio.....	Highsmith, No. 4.....	462	Robinson-2	905	12	443	1,057	50	Dry Salt water, 975 feet.
8 Ohio.....	Highsmith, No. 1.....	468	Robinson-3	932	11	470	1,020	50	Dry No sands.
9 Ohio.....	Highsmith, No. 2.....	469	Robinson-2	905	5	437	1,063	50	Dry Salt water, 992 feet.
10 Ohio.....	Highsmith, No. 5.....	458	Robinson-4	900	17	532	968	50	Dry Gas, 573 feet.
11 Ohio.....	Highsmith, No. 6.....	457	Robinson-1	873	17	416	1,084	20	
12 Ohio.....	Highsmith, No. 3.....	457	Robinson-3	919	12	462	1,038	920	
13 Red Bank.....	Highsmith, No. 1.....	457	do.....	874	40	417	1,087	840	
14 Red Bank.....	Highsmith, No. 2.....	457	Robinson-3	874	43	413	1,087	840	
15 Morrison.....	Highsmith, No. 1.....	465	Robinson-2	840	34	417	1,083	940	
16 Morrison.....	Highsmith, No. 2.....	470	Robinson-3	890	26	425	1,075	940	
17 Morrison.....	Highsmith, No. 4.....	457	Robinson-3	958	26	493	1,007	958	
18 Red Bank.....	Highsmith, No. 5.....	458	Robinson-2	904	20	434	1,064	80	Low gravity oil.
19 Red Bank.....	Highsmith, No. 4.....	456	Robinson-3	954	20	458	1,012	80	Well abandoned.
20 Red Bank.....	Highsmith, No. 6.....	455	Robinson-2	899	43	387	1,113	80	Gas, 844 feet.
21 Morrison.....	Highsmith, No. 3.....	456	Robinson-1	880	39	422	1,038	20	Well abandoned.
			Robinson-2	888	39	421	1,078	800	
			Robinson-3	897	37	372	1,068	897	
			Robinson-1	873	49	418	1,062	25	Gas, 832 feet.
			Robinson-2	830	38	374	1,126	80	Well abandoned because of rapid decline.
			Robinson-3	900	38	444	1,056	25	
22 Red Bank.....	Highsmith, No. 3.....	457	Robinson-1	848	30	391	1,109		
			Robinson-2	892	30	435	1,065		
1 Treat, Crawford & Treat.....	Highsmith, No. 1.....	531	Stray.....	855	17	324	1,176	Show	Gas, 325 pounds pressure.
2 Ohio.....	Richey, No. 5.....	498		935	17	401	1,066	Dry	No record.
3 Ohio.....	Richey, No. 3.....	528						Dry	No record.
4 Ohio.....	Richey, No. 1.....	525	Robinson-1	958	7	433	1,057	1,100	
5 Ohio.....	Richey, No. 4.....	509	Robinson-2	908	7	433	1,037	1,090	
6 Ohio.....	Richey, No. 2.....	492	Robinson-3	925	17	418	1,084	956	
1 Red Bank.....	McCarter, No. 1.....	485	Robinson-3	940	17	418	1,022	975	Light Salt water, 1058 feet.
2 Ohio.....	Bartlet, No. 1.....	486	Robinson-3	937	16	425	1,075	930	Gas, 925 feet.
1 Ohio.....	Crum, No. 1.....	481	Robinson-3	924	16	431	1,049	939	
2 Ohio.....	Crum, No. 4.....	480	Robinson-3	944	14	464	1,057	954	Gas, 954 feet. Well abandoned.
3 Ohio.....	Crum, No. 7.....	476	Robinson-3	940	25	464	1,036	950	Gas, 944 feet.
4 Ohio.....	Crum, No. 3.....	459	Robinson-2	905	5	446	1,054	913	Gas, 940 feet.
5 Ohio.....	Crum, No. 5.....	464	Robinson-4	875	14	406	1,004	932	Gas, 913 feet.
6 Ohio.....	Crum, No. 2.....	469	Robinson-3	942	21	513	989	964	Gas, 960 feet.
7 Ohio.....	Siler, No. 1.....	465	Robinson-3	937	19	472	1,027	952	Salt water, 994 feet.
8 Red Bank.....	Siler, No. 2.....	465	Robinson-3	937	19	472	1,028	941	Gas, 950 feet.
9 Red Bank.....	Siler, No. 3.....	465	Robinson-2	913	32	447	1,053	920	Gas, 937 feet.
10 Red Bank.....	Highsmith, No. 1.....	485							No record.
1 Red Bank.....	Jackson, No. 3.....	504	Robinson-3	901		482	1,018		No record.
2 Wilcox & Schuler.....									Dry Salt water, 1,040 feet.
									Dry No record.

*Crawford County—Honey Creek Township—Concluded.*

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.						Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.					
32—S. E...	3	Wilcox & Schuler	Jackson, No. 1	502									Dry	No record
	4	Wilcox & Schuler	Jackson, No. 2	502									Dry	do
	5	Red Bank	Garrard, No. 1	516	Robinson-1	980	414	1,086	1,010				Dry	Salt water, 1,005 feet
	1	Ohio	Rich, No. 1	500	Robinson-1	926	426	1,074					Dry	Salt water, 1,002 feet
33—S. W...	1	Ohio	Simmons, No. 1	582	Stray	960	378	1,122	976				Gas	960 feet
	2	Shaffer	Kent, No. 1	587	Stray	940	363	1,147	986				Dry	Gas, 940 feet. Salt water, 970 feet
35—S. W...	1	Shaffer	Evans, No. 1	506									Gas	No record

*Crawford County—Martin Township.*

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
1— N. E..	1	Hazelwood.	A. Pope, No. 17.	470	Robinson-1	824	14	354	1,146	890		
	2	Hazelwood.	A. Pope, No. 15.	471	Robinson-2	847	11	377	1,123			
	3	Hazelwood.	A. Pope, No. 11.	469	Robinson-1	816	22	345	1,156	898		
	4	Hazelwood.	A. Pope, No. 13.	471	Robinson-2	823	16	381	1,119	898		
	5	Hazelwood.	A. Pope, No. 12.	465	Robinson-1	816	25	354	1,146	884		
	6	Hazelwood.	A. Pope, No. 10.	465	Robinson-2	837	12	368	1,114			
	7	Hazelwood.	A. Pope, No. 14.	464	Robinson-1	813	23	348	1,152			
	8	Hazelwood.	A. Pope, No. 9.	465	Robinson-2	850	16	385	1,115	885		State, 820 to 824 feet.
	9	Hazelwood.	A. Pope, No. 8.	460	Stray	824	12	343	1,167			
	10	Hazelwood.	A. Pope, No. 7.	464	Robinson-1	808	12	359	1,141	899		
	11	Hazelwood.	A. Pope, No. 4.	455	Robinson-2	850	12	385	1,115			
	12	Hazelwood.	A. Pope, No. 5.	458	Robinson-1	820	25	356	1,144	876		
	13	Ohio.	M. Kersey, No. 1.	456	Robinson-2	851	8	387	1,113	842		
	14	Ohio.	M. Kersey, No. 3.	453	Robinson-1	804	23	339	1,161	844		
	15	Ohio.	M. Kersey, No. 2.	464	Robinson-2	788	26	338	1,162	848		
	16	Ohio.	M. Kersey, No. 5.	465	Robinson-1	797	24	333	1,167			
	17	Ohio.	M. Kersey, No. 7.	463	Robinson-2	780	18	325	1,175	871		
	18	Ohio.	M. Kersey, No. 4.	457	Robinson-1	833	5	368	1,102			
	19	Ohio.	A. Kersey, No. 1.	463	Robinson-2	781	31	323	1,177	855		8 Gas, 756 feet.
					Robinson-1	821	7	363	1,137		20	
					Robinson-2	842		346	1,154	808		
					Robinson-1	800	22	348	1,152	803		
					Robinson-2	818	28	366	1,134			
					Robinson-3	856		404	1,096			
					Robinson-1	838		344	1,156	813		80 Gas, 810 feet.
					Robinson-2	806		341	1,159	810		50 Gas, 806 feet.
					Robinson-3	828		365	1,135			
					Robinson-1	894		431	1,099	800		
					Robinson-2	798	14	341	1,159	800		
					Robinson-3	815	10	352	1,148	820		
					Robinson-1	838	8	366	1,108		25	125 Gas, 815 feet.

## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
1— N. E...	20	Ohio.....	A. Kersey, No. 3.....	465	818	22	353	1,147	820	.....	400	Gas, 818 feet.....
	21	Ohio.....	E. Kersey, No. 2.....	466	850	26	385	1,115	835	.....	400	Gas, 832 feet.....
	22	Ohio.....	E. Kersey, No. 3.....	467	850	20	384	1,116	860	.....	.....	.....
	23	Ohio.....	E. Kersey, No. 1.....	464	800	.....	353	1,167	828	.....	.....	Gas, 826 feet.....
	24	Ohio.....	A. Kersey, No. 4.....	465	828	13	424	1,138	890	.....	300	Best production, 850 feet.
	25	Ohio.....	A. Kersey, No. 2.....	461	804	34	363	1,137	850	.....	50	.....
	26	Ohio.....	J. Hudson, No. 1.....	473	881	8	429	1,071	895	.....	5	Gas, 806 feet.....
	27	Ohio.....	M. Kersey, No. 6.....	466	800	19	420	1,080	885	.....	5	Best production, 885 feet.
	28	Hazelwood.....	Wilson, No. 2.....	450	921	30	327	1,173	820	.....	.....	Gas, 860 feet.....
	29	Hazelwood.....	Wilson, No. 4.....	451	895	3	422	1,078	.....	.....	.....	Salt water, 898 feet.
	30	Hazelwood.....	Wilson, No. 3.....	445	840	58	389	1,111	878	900	.....	Salt water, 840 feet. Salt water, 900 feet.
	31	Hazelwood.....	Wilson, No. 5.....	455	782	33	337	1,163	825	.....	.....	Gas, 785 feet.
N. W..	1	Red Bank.....	F. Frost, No. 1.....	442	782	18	327	1,173	785	.....	.....	23 Salt water, 923 feet.....
	2	Red Bank.....	F. Frost, No. 4.....	443	783	36	403	1,097	860	864	100	.....
	3	Ohio.....	F. Frost, No. 2.....	443	775	12	332	1,175	770	.....	180	.....
	4	Ohio.....	F. Frost, No. 1.....	445	789	9	346	1,154	862	.....	.....	Slate, 787 to 789 feet.
					795	.....	350	1,150	.....	.....	.....	No second lens
					887	.....	442	1,086	.....	.....	Dry	.....

5 Hazelwood.....	Wilson, No. 1.....	437	Stray Robinson-1.....	744	20	307	1,193	Gas. Well abandoned.
6 Red Bank.....	F. Frost, No. 2.....	441	do.....	773	32	366	1,134	100
7 Red Bank.....	F. Frost, No. 3.....	440	do.....	766	18	326	1,174	40
8 Ohio.....	L. Smith, No. 1.....	442	do.....	875	8	435	1,065	30 Gas, 895 feet. Salt water, 880 feet.
9 Ohio.....	A. Mann, Acct. 2, No. 1.....	443	do.....	866	15	423	1,077	40 Gas, 890 feet. Salt water, 885 feet.
10 Ohio.....	A. Mann, Acct. 2, No. 5.....	443	do.....	861	19	423	1,077	40 Gas, 890 feet. Salt water, 885 feet.
11 Ohio.....	A. Mann, Acct. 2, No. 2.....	438	do.....	864	149	418	1,082	Well abandoned.
12 Ohio.....	A. Mann, Acct. 2, No. 3.....	442	do.....	856	.....	414	1,086	3 Gas, 864 feet. Salt water, 871 feet.
13 Ohio.....	A. Mann, Acct. 2, No. 4.....	437	do.....	845	20	408	1,092	Gas, 845 ft., 3,000,000 cu. ft.
1 Treat, Crawford & Treat.....	A. Mann, Acct. 2, No. 6.....	437	Robinson-2.....	827	43	390	1,110	2
3 Fertig Bros.....	Due, No. 1.....	434	Robinson-3.....	906	15	472	1,028	Gas, 827 feet.
4 Fertig Bros.....	Parker, No. 3.....	436	Robinson-1.....	794	10	358	1,142	Gas, 880 feet.
5 Fertig Bros.....	Parker, No. 2.....	465	Robinson-3.....	880	10	444	1,056	No record.
6 Leeper Bros.....	Parker No. 1.....	400	Robinson-2.....	858	5	398	1,102	Quit in sand.
7 Leeper Bros.....	Haskins, No. 1.....	439	Robinson-3.....	752	.....	313	1,187	Salt water, 892 feet.
8 Leeper Bros.....	Haskins, No. 4.....	446	Robinson-2.....	811	81	372	1,128	Salt water, 894 feet.
9 Leeper Bros.....	Haskins, No. 8.....	454	Robinson-1.....	845	49	399	1,101	Gas, 817 feet and 965 feet.
10 Leeper Bros.....	Haskins, No. 7.....	455	Robinson-2.....	815	68	361	1,139	Gas, 965 feet. Salt water, 916 feet.
3 Leeper Bros.....	Haskins, No. 6.....	448	Robinson-3.....	875	37	427	1,073	Quit in sand.
4 Leeper Bros.....	Haskins, No. 5.....	457	Robinson-2.....	868	48	411	1,089	Gas, 886 feet and 892 feet.
5 Leeper Bros.....	Haskins, No. 3.....	450	Robinson-1.....	830	18	390	1,120	Gas
6 Leeper Bros.....	Haskins, No. 2.....	446	Robinson-3.....	889	20	439	1,061	.....
7 W. L. Curtis.....	Mulvane, No. 2.....	460	Robinson-2.....	860	37	414	1,086	.....
8 W. L. Curtis.....	Mulvane, No. 3.....	462	Robinson-1.....	831	18	371	1,129	Quit in sand.
9 W. L. Curtis.....	Mulvane, No. 4.....	461	Robinson-3.....	885	22	435	1,065	Gas, 895 feet.
10 W. L. Curtis.....	Mulvane, No. 1.....	457	Robinson-2.....	890	35	428	1,072	Stray
11 Leeper Bros.....	O. E. & J. C. Esigleton, No. 1.....	458	Robinson-3.....	890	29	366	1,134	Gas, 892 feet.
12 Leeper Bros.....	O. E. & J. C. Esigleton, No. 2.....	458	Robinson-1.....	880	29	426	1,074	No record.
13 Leeper Bros.....	O. E. & J. C. Esigleton, No. 3.....	451	Robinson-2.....	857	29	423	1,077	Quit in sand.
14 Leeper Bros.....	O. E. & J. C. Esigleton, No. 4.....	451	Shallow.....	678	23	224	1,276	Gas, 897 feet. Salt water, 921 feet.
15 Ohio.....	O. E. & J. C. Esigleton, No. 5.....	455	Shallow.....	678	16	227	1,273	100
16 Ohio.....	C. Esigleton, No. 1.....	461	Robinson-2.....	855	10	400	1,100	25 Salt water, 894 feet.
17 Ohio.....	C. Esigleton, No. 2.....	456	Robinson-3.....	803	.....	438	1,062	Gas, 860 feet.
18 Ohio.....	C. Esigleton, No. 3.....	450	do.....	890	24	429	1,071	35 Salt water, 920 feet.
19 Ohio.....	C. Esigleton, No. 4.....	449	do.....	896	19	442	1,058	50 Gas, 895 feet.
20 Ohio.....	C. Esigleton, No. 5.....	459	do.....	896	17	446	1,054	25 Gas, 898 feet. Salt water, 917 feet.
	C. Esigleton, No. 6.....	459	do.....	896	17	446	1,054	75
	C. Esigleton, No. 7.....	459	do.....	896	17	446	1,054	12 Gas, 890 feet.
	C. Esigleton, No. 8.....	459	do.....	896	17	446	1,054	50 Gas, 904 feet.
	C. Esigleton, No. 9.....	459	do.....	896	17	446	1,054	50 Gas, 904 feet.

S. W. . .

S. E. . .



## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company	Name of well.	Sur-face elevation—feet.	Sand				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
2— N. E..	1 Ohio..		G. W. Jones, No. 1.	442	835	21	393	1,107	863		75	Gas, 887 feet.
	2 Ohio..		G. W. Jones, No. 6.	440	857	857	417	1,083	860		10	Gas, 860 feet.
	3 Ohio..		Coulter, No. 6.	441	852	852	411	1,089	860		15	Gas, 852 feet.
	4 Ohio..		Coulter, No. 7.	448	860	860	412	1,088	870		15	Gas, 860 feet.
	5 Ohio..		Coulter, No. 8.	441	783	27	342	1,158	788		75	Gas, 783 feet.
	6 Ohio..		Coulter, No. 5.	450	823	17	373	1,127	830		100	Gas, 823 feet.
	7 Ohio..		Coulter, No. 3.	455	848	30	398	1,102				
	8 Ohio..		Coulter, No. 2.	455	830	23	375	1,125				
	9 Ohio..		Coulter, No. 1.	457	810	22	355	1,145				
	10 Ohio..		Coulter, No. 4.	453	800	22	343	1,157				
	11 Ohio..		G. W. Jones, No. 4.	459	799	18	333	1,167	802		75	Gas, 784 feet.
	12 Ohio..		G. W. Jones, No. 2.	460	803	19	340	1,160	808		200	Gas, 803 feet.
	13 Ohio..		G. W. Jones, No. 3.	464	796		332	1,168	808		75	Gas, 796 feet.
	14 Ohio..		G. W. Jones, No. 7.	460	800	20	340	1,160			50	Gas, 800 feet.
N. W..	15 Ohio..		G. W. Jones, No. 5.	465	887	16	427	1,073	890		50	Salt water, 920 feet.
	1 Riddle..		Marshall, No. 6.	471	808	8	433	1,067	905		150	Gas, 859 feet.
	2 Riddle..		Marshall, No. 5.	466	856	674	385	1,115	903		100	Gas, 859 feet.
	3 Riddle..		Marshall, No. 3.	463	800	20	334	1,166			100	Gas, 859 feet.
	4 Riddle..		Marshall, No. 4.	470	808	22	345	1,155			100	Gas, 859 feet.
	5 Riddle..		Marshall, No. 7.	467	825	23	355	1,145			100	Gas, 859 feet.
	6 Riddle..		Marshall, No. 8.	471	799	31	332	1,168	818		992	Gas, 885 feet.
	7 Riddle..		Marshall, No. 2.	471	839	26	392	1,108			100	Gas, 885 feet.
	8 Riddle..		Marshall, No. 1.	470	802	17	331	1,169			150	Gas, 885 feet.
	9 Treat, Crawford & Treat.		Marshall, No. 1.	463	868	25	354	1,146			125	Gas, 885 feet.
	10 Treat, Crawford & Treat.		Due, No. 4.	461	836	21	459	1,041	930		260	Gas, 885 feet.
	11 Treat, Crawford & Treat.		Due, No. 7.	461	824	26	361	1,139	877		250	Gas, 885 feet.
	11 Treat, Crawford & Treat.		Due, No. 6.	457	823	37	362	1,138	840		250	Gas, 885 feet.
					834	50	377	1,123	838		260	Gas, 885 feet.

12 Treat, Crawford & Treat.	Due, No. 6.	462	do.	834	31	372	840	250	
13 Associated Producers.	Due, No. 8.	462	Shallow.	625	10	163	1,337		
14 Treat, Crawford & Treat.	Due, No. 3.	463	Robinson-1.	850	28	388	1,112		Slate, 635 feet to 850 feet.
15 Treat, Crawford & Treat.	Due, No. 2.	460	do.	890		397	1,103	850	
16 Treat, Crawford & Treat.	Due, No. 1.	467	do.	847	33	387	1,113	855	
17 Ohio.	V. Parker, No. 5.	476	Robinson-2.	846	28	379	1,121	848	
			do.	888		412	1,088		Gas, 898 feet, 6,000,000 cubic feet gas.
18 Ohio.	V. Parker, No. 6.	480	do.	916	12	436	1,064	920	10 Gas, 916 feet.
19 Ohio.	V. Parker, No. 7.	477	Robinson-1.	870	18	383	1,107	875	Gas, 870 feet.
20 Ohio.	V. Parker, No. 8.	472	Robinson-2.	910	26	433	1,067	912	200 Best production.
			do.	852	33	380	1,120	860	140 Gas, 855 feet.
21 Ohio.	V. Parker, No. 3.	470	do.	838	40	368	1,133		Gas, 878 feet.
22 Ohio.	V. Parker, No. 1.	463	Robinson-2.	863	15	423	1,077	863	5
23 Ohio.	V. Parker, No. 2.	472	Robinson-1.	825	362	1,138	830		300 Gas, 825 feet.
24 Ohio.	V. Parker, No. 4.	473	do.	824	26	352	1,148	838	200 Gas, 834 feet.
25 Ohio.	Lamb, No. 2.	463	do.	868	33	385	1,105	870	250 Gas, 870 feet.
26 Ohio.	Lamb, No. 3.	476	do.	842	29	379	1,121		
			do.	855	26	379	1,121		
27 Ohio.	Lamb, No. 5.	475	do.	868		383	1,107		
28 Ohio.	Lamb, No. 4.	466	Robinson-2.	900	6	425	1,075		
29 Samuels & McArthur.	Lamb, No. 1.	466	Robinson-1.	861	31	395	1,105		
30 Samuels & McArthur.	Lamb, No. 2.	472	Robinson-2.	876	21	410	1,090	897	
31 Samuels & McArthur.	Lamb, No. 3.	474	do.	891	25	419	1,081	916	
1 Leeper Bros.	Sexton, No. 1.	467	Stray.	850	18	376	1,124		
2 Leeper Bros.	Sexton, No. 2.	468	Robinson-1.	896		419	1,081		Dry
3 Pease & Co.	Lathrop & McCarty, No. 1.	456	Stray.	845	5	389	1,111		No record.
4 Pease & Co.	Lathrop & McCarty, No. 5.	460	Robinson-1.	860	10	404	1,096	887	Red shale. 624 to 658 feet
			do.	857	7	397	1,103		Oil of about 36° gravity.
5 Pease & Co.	Lathrop & McCarty, No. 2.	454	Robinson-1.	872	12	412	1,068	898	25
6 Pease & Co.	Lathrop & McCarty, No. 3.	454	do.	785	16	331	1,169		
7 Pease & Co.	Lathrop & McCarty, No. 4.	455	Robinson-1.	852	37	398	1,102	919	
8 Ohio.	Baker, No. 2.	455	Robinson-2.	838	57	384	1,116	903	20
9 Ohio.	Baker, No. 1.	453	do.	893	19	428	1,072		15
1 Ohio.	Randolph, No. 1.	449	Robinson-3.	894	43	439	1,061	920	45 Gas, 918 feet.
2 Ohio.	Randolph, No. 2.	436	do.	899	22	446	1,054	899	50 Gas, 905 feet.
3 Ohio.	Randolph, No. 7.	435	Robinson-1.	857	59	421	1,079	923	Bottom of sand.
4 Ohio.	Randolph, No. 6.	443	do.	855	21	420	1,080	880	15 Gas, 857 feet.
5 Ohio.	Randolph, No. 8.	441	Robinson-2.	870	19	427	1,073	875	12 Gas, 857 feet.
			do.	833	23	392	1,108	845	40 Gas, 870 feet.
			do.						Gas, 833 feet. Salt water, 890 feet.
6 Ohio.	Randolph, No. 5.	444	Robinson-1.	801	11	357	1,143		
7 Ohio.	Randolph, No. 4.	443	Robinson-2.	868	23	424	1,076	875	60 Gas, 867 feet.
8 Ohio.	Randolph, No. 3.	443	do.	852	34	409	1,091	855	75 Gas, 852 feet.
9 P. Ewing.	Randolph, No. 5.	441	Robinson-2.	803	22	360	1,140	805	Gas, 803 feet.
10 P. Ewing.	Randolph, No. 3.	449	Robinson-1.	825	14	376	1,124		50 Best production.
11 P. Ewing.	Randolph, No. 2.	454	Robinson-2.	881	5	432	1,068		No record.
			do.	837	3	383	1,117		

S. W.

S. E.

## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
2—S. E...	12	P. Ewing.	Randolph, No. 1.	453	853	20	400	1,100				No record.
	13	P. Ewing.	Randolph, No. 4.	451								do.
	14	P. Ewing.	Randolph, No. 6.	452	885	15	401	1,099				
	1	Pure	S. Shipman, No. 3.	494	915	17	431	1,099			10	
3—N. E...	2	Pure	S. Shipman, No. 7.	485	932	18	447	1,053		950		
	3	Pure	S. Shipman, No. 6.	487	926	12	439	1,061	926			
			S. Shipman, No. 4.	490	920	23	430	1,070	943			
	4	Pure	S. Shipman, No. 4.	490	1,006	11	516	984			15	Slate, 943 to 1,006 feet.
	5	Pure	S. Shipman, No. 5.	481	890	25	399	1,101		960		
	6	Pure	S. Shipman, No. 1.	476	935	18	454	1,046			30	Slate, 905 to 935 feet.
	7	Pure	S. Shipman, No. 2.	480	911	22	414	1,066		919	75	
	8	Ohio	Lamb, No. 6.	477	905	21	431	1,069		928	30	
	9	Ohio	Lamb, No. 7.	473	930	10	452	1,072				
	10	Ohio	Lamb, No. 1.	471	936	12	463	1,037		952		No record.
	11	Samuels & McArthur	S. Lamb, No. 4.	490								Salt water.
11—N. W.			S. Shipman, No. 1.		1,070		560	920				
	1	Ohio	D. Shipman, No. 1.	436	856	22	420	1,080		828		
N. E...	2	Ohio	D. Shipman, No. 3.	436	932		406	1,004	934		10	Gas, 932 feet. Salt water 950 feet.
	3	Ohio	D. Shipman, No. 2.	435	890	12	455	1,045	883			Gas, 892 feet.
N. W.	4	Ohio	Conover, No. 2.	435	906		561	939				Dry Salt water, 906 feet.
	5	Ohio	Conover, No. 3.	434	1,010	10	576	924				Dry Salt water, 1,010 feet.
	6	Ohio	Conover, No. 1.	439	1,026		587	913				Dry No record.
	1	Hubbard	Baker, No. 1.	448								
12—N. W.	1	Ohio	Jones, No. 1.	451	879		428	1,072				Well abandoned.
	2	Ohio	Jones, No. 3.	430	865		425	1,076	868		35	(gas, 855 feet.

S. W.	3 Ohio.....	Jones, No. 2.....	434	Robinson-1.....	850	23	416	1,084	860	100	do.
S. E.	4 Ohio.....	Jones, No. 4.....	435	Robinson-2.....	870	6	437	1,063	873	46	Gas, 870 feet.
13—	5 Ohio.....	Jones, No. 5.....	436	Robinson-3.....	886	10	453	1,047	880	50	Best production.
19—	1 Ohio.....	Mann, No. 1.....	444	Stray.....	981	14	425	1,075	885	50	Gas, 861 feet.
S. W.	1 Thayer.....	Due, No. 1.....	463	Robinson-2.....	923	3	460	1,040	1,004	1,004	Dry salt water, 984 feet. Well abandoned.
20—	1 Ohio.....	Baker, No. 1.....	452	Robinson-3.....	963	41	500	1,000	1,004	1,004	Show Dry Salt water, 984 feet.
S. W.	1 McGrahnan.....	Gross, No. 1.....	459	Robinson.....	1,080	.....	628	872	.....	.....	Dry Salt water, 1,088 feet.
N. W.	1 Ohio.....	R. Woods, No. 1.....	468	.....	1,366	4	888	602	1,370	1,370	Dry No record.
S. W.	1 Ohio.....	J. Sears, No. 1.....	468	.....	1,075	.....	606	884	.....	.....	Dry Salt water.
N. E.	1 Ohio.....	L. Smith, No. 4.....	462	Robinson-2.....	1,432	.....	963	537	1,451	1,451	do.
20—	2 Ohio.....	L. Smith, No. 5.....	463	do.....	913	.....	451	1,049	915	20	Gas, 915 feet.
N. E.	3 Ohio.....	Abbot, No. 3.....	461	do.....	907	20	444	1,056	912	20	Gas, 908 feet.
S. W.	4 Ohio.....	Abbot, No. 2.....	464	do.....	915	.....	454	1,046	921	12	Gas, 920 feet.
N. E.	5 Ohio.....	Abbot, No. 1.....	460	Robinson-1.....	918	.....	454	1,046	922	4	do.
N. E.	6 Ohio.....	Abbot, No. 4.....	462	Robinson-1.....	880	.....	420	1,080	972	972	Salt water, 968 feet.
N. E.	7 Rock.....	Abbot, No. 4.....	462	.....	1,057	.....	585	905	.....	.....	Salt water, 1,057 feet.
N. E.	8 Rock.....	Uhrich, No. 2.....	464	Shallow.....	450	35	7	1,507	.....	.....	Dry No record.
N. W.	1 Crescent.....	Uhrich, No. 3.....	457	Robinson-1.....	770	25	413	1,087	.....	.....	.....
N. W.	2 Minnetonka.....	Baldwin, No. 2.....	447	Robinson-3.....	940	35	483	1,017	.....	.....	Dry
S. E.	1 Rock.....	Willard, No. 1.....	460	do.....	934	.....	487	1,013	.....	.....	Dry
N. E.	1 Benedictum-Trees.....	Uhrich, No. 1.....	443	Stray.....	1,077	2	630	870	.....	.....	Dry Salt water.
N. E.	2 Benedictum-Trees.....	R. Siler, No. 5.....	474	Robinson-2.....	1,028	.....	468	1,032	860	860	Dry Salt water, 976 feet.
N. E.	3 Benedictum-Trees.....	R. Siler, No. 8.....	477	Robinson-1.....	890	.....	416	1,084	917	917	Gas, 892 feet.
N. E.	4 Benedictum-Trees.....	R. Siler, No. 10.....	473	Stray.....	905	.....	428	1,072	910	937	Quit in sand.
N. E.	5 Benedictum-Trees.....	R. Siler, No. 7.....	472	Robinson-2.....	825	.....	352	1,148	938	150	Gas, 825 feet. Quit in sand.
N. E.	6 Benedictum-Trees.....	R. Siler, No. 9.....	473	do.....	900	.....	428	1,072	900	930	Quit in sand.
N. E.	7 Benedictum-Trees.....	R. Siler, No. 6.....	473	do.....	897	47	424	1,076	905	944	Quit in sand.
N. E.	8 Brown & Hogue.....	Wasson, No. 11.....	467	Robinson-1.....	880	50	413	1,087	902	929	Quit in sand.
N. E.	9 Brown & Hogue.....	Wasson, No. 10.....	473	Robinson-1.....	902	22	429	1,071	940	940	Quit in sand.
N. E.	10 Brown & Hogue.....	Wasson, No. 12.....	473	Robinson-1.....	878	45	406	1,064	.....	.....	.....
N. E.	11 Brown & Hogue.....	Wasson, No. 9.....	475	Robinson-2.....	910	30	435	1,065	940	940	.....
N. E.	12 Brown & Hogue.....	Wasson, No. 8.....	475	do.....	902	35	427	1,073	935	935	.....
N. E.	13 Brown & Hogue.....	Wasson, No. 7.....	472	do.....	906	27	431	1,069	902	902	400 Gas, 902 feet.
N. E.	14 Ohio.....	S. Shire, No. 5.....	472	do.....	902	.....	430	1,070	900	150	Gas, 905 feet. Salt water, 910 feet.
N. E.	15 Ohio.....	S. Shire, No. 6.....	472	do.....	893	.....	421	1,079	900	200	Gas, 913 feet. Salt water, 930 feet.
N. E.	16 Ohio.....	S. Shire, No. 7.....	472	do.....	913	.....	441	1,059	915	150	Gas, 915 feet.
N. E.	17 Ohio.....	S. Shire, No. 16.....	473	do.....	914	.....	429	1,058	918	200	Gas, 905 feet.
N. E.	18 Ohio.....	S. Shire, No. 17.....	472	do.....	901	.....	442	1,071	915	150	Gas, 905 feet.
N. E.	19 Ohio.....	S. Shire, No. 4.....	473	do.....	911	.....	438	1,062	915	150	Gas, 911 feet.





## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
21— S. E.	26	Ohio.....	McColpin, No. 1.....	450	Robinson-1.....	854	.....	404	1,096	856	.....	800	Gas, 854 feet. Salt water, 861 feet.
	27	Ohio.....	McColpin, No. 2.....	450	do.....	845	.....	395	1,105	870	.....	150	Gas, 850 feet. Salt water, 870 feet.
	28	Ohio.....	McColpin, No. 3.....	451	do.....	843	.....	392	1,108	850	.....	1,000	Gas, 845 feet.
	29	Ohio.....	McColpin, No. 6.....	458	do.....	855	.....	397	1,103	865	.....	800	Gas, 860 feet. Salt water, 875 feet.
	30	Featzter, Copeland et, al.....	McColpin, No. 5.....	457	do.....	850	.....	393	1,107	855	.....	200	Gas, 850 feet.
	31	Featzter, Copeland et, al.....	McColpin, No. 4.....	451	Robinson-2.....	863	.....	412	1,088	865	.....	1,100	Gas, 865 feet. Salt water, 870 feet.
	32	Brown-Hogue.....	Wasson, No. 2.....	452	Robinson-1.....	842	20	390	1,110	862	904	.....	.....
	33	Brown-Hogue.....	Wasson, No. 3.....	458	do.....	860	50	402	1,098	.....	915	.....	.....
	34	Brown-Hogue.....	Wasson, No. 4.....	469	Robinson-2.....	862	31	423	1,077	.....	.....	.....	.....
	35	Brown-Hogue.....	Wasson, No. 6.....	472	do.....	862	28	440	1,060	.....	.....	.....	.....
22— N. E.	36	Brown-Hogue.....	Wasson, No. 5.....	465	do.....	885	41	420	1,080	.....	.....	.....	.....
	1	Red Bank.....	C. Martin, No. 10.....	484	Robinson-1.....	858	.....	374	1,126	.....	.....	Gas	Gas, 858 feet. 1,500,000 cu. ft. gas from this well
	2	Red Bank.....	C. Martin, No. 7.....	484	Robinson-2.....	900	68	416	1,084	.....	.....	Gas,	Gas, 900 feet.
	3	Red Bank.....	C. Martin, No. 6.....	480	Robinson-1.....	855	.....	371	1,129	.....	.....	.....	.....
	4	Red Bank.....	C. Martin, No. 3.....	470	Robinson-2.....	875	.....	391	1,109	943	.....	.....	.....
	5	Red Bank.....	C. Martin, No. 5.....	475	Robinson-3.....	943	.....	459	1,041	.....	.....	.....	.....
	6	Red Bank.....	C. Martin, No. 1.....	486	Robinson-1.....	840	.....	360	1,140	890	.....	35	.....
					Robinson-2.....	875	20	395	1,105	925	.....	50	.....
					Robinson-3.....	925	10	445	1,055	873	.....	.....	.....
					Robinson-1.....	843	25	373	1,127	873	.....	.....	.....
				Casey.....	873	27	403	1,097	862	.....	.....	.....	
				Robinson-1.....	859	.....	384	1,116	893	.....	.....	.....	
				Robinson-1.....	400	.....	+86	1,588	.....	.....	.....	.....	
				Robinson-1.....	860	24	374	1,126	902	.....	.....	.....	
				Robinson-2.....	880	.....	404	1,096	920	.....	.....	.....	.....





## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
22— N. E.		32 W. W. Splane.	Prior, No. 7.	473	Robinson-1	837	16	364	1,136	874		Gas.
					Robinson-2	874	29	401	1,099			
					Robinson-3	835		463	1,037			
					Robinson-2	831	22	370	1,121			
				472	Robinson-3	904	30	433	1,068	904		Salt water, 954 to 965 feet.
N. W.		33 W. W. Splane.	Prior, No. 5.	472	Robinson-2	835	30	433	1,037	940		Salt water, 954 to 965 feet.
					Robinson-3	845	42	375	1,125			Sand and slate, 966 to 976 feet.
				465	Robinson-2	897	6	432	1,068			Salt water, 967 feet.
					Robinson-3	937	1	472	1,028	947		Salt water, 967 feet.
					Robinson-2	845	25	371	1,129			Salt water, 967 feet.
				474	Robinson-3	890	5	408	1,034			Salt water, 967 feet.
					Robinson-2	940	27	446	1,004			Salt water, 967 feet.
					Robinson-3	832	52	390	1,129	899		Salt water, 967 feet.
				462	Robinson-2	924	5	453	1,035	950		Salt water, 967 feet.
				484	H. Martin, No. 2	835	49	398	1,047	898		Salt water, 967 feet.
				479	H. Martin, No. 2	874	35	408	1,047	898		Salt water, 967 feet.
				461	H. Martin, No. 1	873	61	350	1,105	883		Salt water, 967 feet.
					do.	875	61	350	1,105			Salt water, 967 feet.
				472	H. Martin, No. 6	902	8	435	1,140	907		Salt water, 967 feet.
N. W.		34 W. W. Splane.	Prior, No. 2.	472	Robinson-2	877	8	435	1,065	907		Salt water, 967 feet.
					Robinson-1	872	9	430	1,100			Salt water, 967 feet.
				472	Robinson-2	872	30	435	1,071			Salt water, 967 feet.
				455	do.	891	30	435	1,071			Salt water, 967 feet.
				472	H. Martin, No. 5	890	37	428	1,071			Salt water, 967 feet.
				472	H. Martin, No. 7	905	30	428	1,071			Salt water, 967 feet.
				486	J. Birch, No. 2	835	30	428	1,071			Salt water, 967 feet.
				462	do.	835	30	428	1,071			Salt water, 967 feet.
				467	H. Martin, No. 1	835	30	428	1,071			Salt water, 967 feet.
				467	J. Birch, No. 2	835	30	428	1,071			Salt water, 967 feet.
				473	J. Birch, No. 1	835	22	433	1,071	894		Salt water, 967 feet.
				do.	do.	835	22	433	1,071			Salt water, 967 feet.
				473	Robinson-1	835	25	433	1,071			Salt water, 967 feet.
				483	Robinson-2	900	16	437	1,063			Salt water, 967 feet.



## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face ele-va-tion—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
22— N. E..	32	W. W. Splane.	Prior, No. 7.	473	Robinson-1	837	18	364	1,136	874		Gas.
					Robinson-2	874		401	1,099			
					Robinson-3	936		468	1,037			
	33	W. W. Splane.	Prior, No. 5.	472	Robinson-1	851	22	379	1,121	904		Salt water, 954 to 965 feet.
					Robinson-2	904	6	432	1,068	940		
N. W..	34	W. W. Splane.	Prior, No. 2.	465	Robinson-3	935	30	462	1,037			Sand and slate, 966 to 976 feet.
					Robinson-1	840	42	375	1,125			
					Robinson-2	897	6	432	1,068			
					Robinson-3	937	1	472	1,028			Salt sand, 980 to 988 feet.
	35	W. W. Splane.	Prior, No. 1.	474	Robinson-1	845	25	371	1,129	847		Show Gas, 847 feet.
					Robinson-2	890	5	406	1,094			Show Coal, 825 to 830 feet.
					Robinson-3	940	27	466	1,034			
	36	W. W. Splane.	Prior, No. 3.	462	Robinson-1	862	52	380	1,120	899		
					Robinson-2	924	5	442	1,058	950		Salt water, 907 feet.
	1	Ohio.	H. Martin, No. 3.	484	Robinson-3	935	49	453	1,047			Salt water, 940 feet.
	2	Ohio.	H. Martin, No. 2.	479	Robinson-1	890	35	406	1,094	888		
	3	Ohio.	H. Martin, No. 1.	481	do.	874	46	396	1,105	885		
	4	Ohio.	H. Martin, No. 6.	472	do.	878	61	397	1,103			
					Robinson-2	862	1	390	1,110	907		
	5	Ohio.	H. Martin, No. 4.	472	Robinson-1	907	8	435	1,065			
	6	Ohio.	H. Martin, No. 5.	466	Robinson-2	872	9	400	1,100			
	7	Ohio.	H. Martin, No. 7.	472	do.	901	36	429	1,071			
	8	Wabash.	J. Birch, No. 2.	466	do.	880	37	426	1,075			Salt water, 928 feet.
	9	Wabash.	J. Birch, No. 1.	462	do.	906	30	433	1,067			
	10	Red Bank.	J. Birch, No. 2.	467	do.	885	36	423	1,068			
	11	Red Bank.	J. Birch, No. 1.	473	Stray	886	22	419	1,081	894		15 Gas, 886 feet.
					Robinson-1	826		353	1,147			
	12	Ohio.	do.	463	Robinson-2	900	15	413	1,087			500 Gas, 886 feet.

[illegible]

**S. W.**

## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
22— S. W.	17	Wattford	Doollittle, No. 6.	482	798	8	336	1,164				
					824	25	362	1,138				
					868	15	406	1,094				
					927	27	465	1,035		964		
					865	1	391	1,109				
	18	Wattford	Doollittle, No. 7.	474	905	30	431	1,069	915			
					947	32	473	1,027				
					840	18	382	1,138				
					870	8	392	1,108	935			
					848	18	373	1,127				
S. E.	20	Wattford	Doollittle, No. 4.	475	882	31	407	1,063	934			
					836		388	1,112				
					942	14	474	1,026	961			
					876	15	392	1,108				
					965	10	501	999	966			Quit in sand. Slate, 891 to 986 feet. No. 2 and 3 lenses out.
					855	20	370	1,130				
					901	22	416	1,064	923			
												No record do.
					855	26	374	1,126	870			
					857		376	1,124				
	21	Wattford	Doollittle, No. 2.	481	970	10	489	1,011				
					837		363	1,137				
					885		411	1,089				
					948	16	474	1,026				
					852	18	372	1,128	965			
					959	9	479	1,021	973			
	22	Wattford	Doollittle, No. 3.	481	853	52	372	1,128				
					932	31	451	1,049				
					853	59	373	1,127				
					940		460	1,040	25			



## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
23— N. E..	8	Morrison	Martin, No. 2.	498	Robinson-1	905	45	407	1,093	915	50	
	9	Morrison	Martin, No. 3.	500	do	900	10	409	1,091			
					Robinson-2	927	23	437	1,063			
					Robinson-3	963	5	433	1,037		50	Gas, 917 feet.
N. W..	1	Ohio	Reed, No. 8.	501	Stray	915	7	414	1,086	917	80	No record. Well abandoned.
	2	Ohio	Reed, No. 9.	492	Robinson-2	930	10	439	1,071	934		No record. Well abandoned.
	3	Ohio	Reed, No. 7.	500	Robinson-1	908		384	1,116			No record.
	4	Ohio	Reed, No. 4.	484	do	875	20	385	1,115		5	Well abandoned.
	5	Parker-Crowly	Crowly, No. 1.	490	Robinson-2	908	47	418	1,086	975		
	6	Parker-Crowly	Crowly, No. 3.	496	Robinson-2	910	10	418	1,086			
					Stray	935	5	433	1,061	952		
	7	Parker-Crowly	Crowly, No. 2.	500	Robinson-2	920	21	420	1,060	950		Gas, 925 feet.
	8	Parker-Crowly	Crowly, No. 4.	500	do	920	18	420	1,060	938		Salt water, 948 feet.
	9	Parker-Edwards	Crowly, No. 1.	485	Robinson-1	890		385	1,105	925		Salt water, 935 feet.
	10	Parker-Edwards	Crowly, No. 2.	492						905		Salt water, 905 feet. Well abandoned.
	11	Wark	Dennis, No. 4.	494	Robinson-1	890	57	378	1,124			
					Robinson-3	922	18	448	1,052	964	75	
	12	Ohio	C. T. Stewart, No. 4.	482	Robinson-3	871	6	392	1,108			
	13	Ohio	C. T. Stewart, No. 1.	474	Robinson-3	919	22	407	1,065	932	60	Gas, 930 feet.
					Robinson-2	925		407	1,065	932	60	Gas, 912 feet.
	14	Ohio	C. T. Stewart, No. 5.	478	Robinson-1	940	17	371	1,129			
					Robinson-2	969	35	391	1,109	976	50	Gas, 975 feet.
	15	Ohio	C. T. Stewart, No. 3.	487	do	898		381	1,109			
	16	Ohio	C. T. Stewart, No. 2.	491	Robinson-3	935		444	1,054	958	300	Gas, 905 feet.
	17	Ohio	C. T. Stewart, No. 1.	498	do	922		431	1,066	940	45	Gas, 935 feet.
	18	Ohio	Sparks, No. 2.	504	do	922		431	1,066	940	45	Gas, 935 feet.
					Sparks, No. 2.	946		394	1,064	946	20	Gas, 944 feet.
	19	Ohio	Sparks, No. 3.	482	Robinson-1	876	24	394	1,104			
					Robinson-2	910	57	436	1,072	920	100	Gas, 915 feet.

S. W.	20 Ohio.....	Sparks, No. 4.....	491	do	920	21	429	1,071	939	100 Gas, 924 feet.
	21 Ohio.....	Sparks, No. 5.....	497	Stray	911	6	414	1,086	914	40 Gas, 935 feet.
	1 Red Bank.....	Mitchell, No. 3.....	498	Robinson-2	934	6	427	1,083	906	500
	2 Red Bank.....	Mitchell, No. 2.....	498	Robinson-1	935	14	395	1,134		20
	3 Red Bank.....	Mitchell, No. 1.....	499	Robinson-3	936	41	434	1,066	887	250
	4 Ohio.....	do.....	499	Robinson-2	937	21	404	1,066		
	5 Ohio.....	Mitchell, No. 2.....	499	Robinson-3	938	10	440	1,060		
	6 Ohio.....	Mitchell, No. 3.....	499	Robinson-1	937	7	374	1,126	963	
	7 Ohio.....	McColpin, No. 7.....	498	Robinson-3	937		443	1,067	940	Dry No record
	8 Ohio.....	McColpin, No. 9.....	494	Robinson-1	932		382	1,118	1,023	150 Gas, 933 feet.
	9 Ohio.....	McColpin, No. 13.....	495	do	961	24	366	1,134	867	Dry Gas, 983 feet. Salt water, 986 feet.
	10 Ohio.....	McColpin, No. 19.....	494	Robinson-2	866	66	373	1,127	896	No record
	11 Ohio.....	McColpin, No. 15.....	493	Robinson-1	855	13	352	1,148		60 Gas, 872 feet.
	12 Pure.....	Stewart Helrs, No. 3.....	503	Robinson-3	930	25	427	1,073	957	75
	13 Pure.....	Stewart Helrs, No. 4.....	515	Robinson-2	938	4	383	1,117		975
	14 Pure.....	Stewart Helrs, No. 5.....	513	Robinson-3	920	21	405	1,095	887	50
	15 Pure.....	Stewart Helrs, No. 6.....	509	Robinson-1	890	17	367	1,133		
	16 Pure.....	Stewart Helrs, No. 2.....	498	do	890	26	381	1,119		
	17 Pure.....	Stewart Helrs, No. 1.....	499	Robinson-2	928	7	419	1,081	1,027	30
	18 Peoples Oil and Gas Co. ....	Hopkins (lower 40), No. 4.....	497	Robinson-4	1,002	25	483	1,007		
	19 Peoples Oil and Gas Co. ....	Hopkins (lower 40), No. 3.....	499	Robinson-1	902	3	404	1,066		
	20 Peoples Oil and Gas Co. ....	Hopkins (lower 40), No. 5.....	499	Robinson-4	960	4	492	1,008	547	953
	21 Peoples Oil and Gas Co. ....	Hopkins (lower 40), No. 2.....	504	Stray	1,045	2	547	953	1,122	Dry
	22 Peoples Oil and Gas Co. ....	Hopkins (lower 40) No. 1.....	498	Robinson-3	1,109	3	611	889		No record
	1 Smith, Neely & Kerr.....	Shipman, No. 1.....	509	Robinson-1	885	25	398	1,102		
	2 Smith, Neely & Kerr.....	Shipman, No. 2.....	521	Robinson-4	981	21	484	1,016		
	3 Crescent.....	Hooker, No. 3.....	526	Robinson-1	890	24	391	1,109		
	4 Crescent.....	Hooker, No. 2.....	513	Robinson-3	962	20	463	1,037		
	5 Crescent.....	Hooker, No. 1.....	516	Robinson-1	961	15	392	1,108		
	6 Crescent.....	Hooker, No. 4.....	517	Robinson-3	940	7	441	1,096		
S. E.	1 Smith, Neely & Kerr.....	Shipman, No. 1.....	509	Robinson-4	986	18	487	1,013		
	2 Smith, Neely & Kerr.....	Shipman, No. 2.....	521	Robinson-3	950	10	446	1,054		
	3 Crescent.....	Hooker, No. 3.....	526	Robinson-4	998	18	494	1,006		
	4 Crescent.....	Hooker, No. 2.....	513	Robinson-1	886	6	388	1,112		
	5 Crescent.....	Hooker, No. 1.....	516	Robinson-3	928	30	430	1,070		
	6 Crescent.....	Hooker, No. 4.....	517	Robinson-2	932		411	1,089	940	Dry No record
				Robinson-1	912	18	386	1,114		Light Well abandoned
				Robinson-2	948	14	422	1,078	966	
				Robinson-3	890	27	377	1,123	890	
				Robinson-1	986	24	423	1,077	968	
				Robinson-2	976	22	460	1,040	908	
				Robinson-3	1,038	10	522	978	1,038	Salt water, 1,004 feet.
				Stray	1,087	8	571	929	1,087	Well abandoned
				Stray	1,087					No record



## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
23— N. E.	8	Morrison.....	Martin, No. 2.....	498	Robinson-1.....	905	45	407	1,093	915	50	.....
	9	Morrison.....	Martin, No. 3.....	500	do.....	909	10	409	1,091	.....	.....	.....
	N. W.	1 Ohio.....	Reed, No. 8.....	501	Robinson-2.....	937	23	437	1,063	.....	50	.....
					Robinson-3.....	963	5	463	1,037	.....	.....	Gas, 917 feet.....
24— N. W.	1	Ohio.....	Reed, No. 8.....	501	Stray.....	915	7	414	1,096	917	80	No record. Well abandoned.
	2	Ohio.....	Reed, No. 9.....	492	Robinson-2.....	930	10	420	1,071	934	.....	No record. Well abandoned.
	3	Ohio.....	Reed, No. 7.....	500	Robinson-1.....	868	.....	384	1,116	.....	.....	No record.
	4	Ohio.....	Reed, No. 4.....	494	do.....	875	20	385	1,115	.....	.....	Well abandoned.
	5	Parker-Crowly.....	Crowly, No. 1.....	490	Robinson-2.....	908	47	418	1,062	975	.....	.....
	6	Parker-Crowly.....	Crowly, No. 3.....	496	Robinson-2.....	910	10	414	1,066	.....	.....	.....
	7	Parker-Crowly.....	Crowly, No. 2.....	496	Stray.....	935	5	439	1,061	952	.....	Gas, 926 feet.....
	8	Parker-Crowly.....	Crowly, No. 4.....	500	Robinson-2.....	920	21	420	1,080	930	.....	Salt water, 948 feet.....
	9	Parker-Edwards.....	Crowly, No. 1.....	500	do.....	920	18	420	1,080	948	.....	Salt water, 885 feet.....
	10	Parker-Edwards.....	Crowly, No. 2.....	492	Robinson-1.....	890	.....	395	1,105	925	.....	Salt water, 906 feet. Well abandoned.
	11	Wark.....	Dennis, No. 4.....	484	Robinson-1.....	860	57	376	1,124	905	.....	.....
	12	Ohio.....	C. T. Stewart, No. 4.....	482	Robinson-3.....	932	18	448	1,052	964	75	.....
	13	Ohio.....	C. T. Stewart, No. 1.....	474	Robinson-3.....	874	6	392	1,108	.....	80	Gas, 930 feet.....
	14	Ohio.....	C. T. Stewart, No. 1.....	474	Robinson-2.....	919	22	437	1,063	932	60	Gas, 912 feet.....
	15	Ohio.....	C. T. Stewart, No. 5.....	475	Robinson-1.....	875	.....	401	1,099	902	.....	.....
	16	Ohio.....	C. T. Stewart, No. 3.....	487	Robinson-2.....	849	17	371	1,126	876	.....	Gas, 876 feet.....
	17	Ohio.....	C. T. Stewart, No. 2.....	491	do.....	888	35	391	1,109	.....	50	Gas, 895 feet.....
	18	Ohio.....	Sparks, No. 1.....	498	Robinson-3.....	935	.....	444	1,056	938	300	Gas, 930 feet.....
	19	Ohio.....	Sparks, No. 2.....	504	do.....	932	.....	434	1,066	940	45	Gas, 936 feet.....
	20	Ohio.....	Sparks, No. 3.....	492	Robinson-1.....	876	24	436	1,064	946	20	Gas, 944 feet.....
	21	Ohio.....	Sparks, No. 3.....	492	Robinson-2.....	910	57	426	1,072	920	150	Gas, 915 feet.....

20 Ohio.....	Sparks, No. 4.....	491	do.....	920	21	439	1,071	929	100 Gas, 924 feet.
21 Ohio.....	Sparks, No. 5.....	497	Robinson-1.....	911	6	417	1,066	914	40 Gas, 935 feet.
1 Red Bank.....	Mitchell, No. 3.....	498	Robinson-2.....	924	6	434	1,063	936	500
2 Red Bank.....	Mitchell, No. 2.....	498	Robinson-1.....	935	14	395	1,124		200
3 Red Bank.....	Mitchell, No. 1.....	498	Robinson-2.....	936	17	434	1,066	887	
4 Ohio.....	do.....	499	Robinson-1.....	930	21	390	1,120		
5 Ohio.....	Mitchell, No. 2.....	499	Robinson-2.....	930	10	404	1,066		
6 Ohio.....	Mitchell, No. 3.....	499	Robinson-3.....	930	10	440	1,060		
7 Ohio.....	Mitchell, No. 3.....	498	Robinson-3.....	937	7	374	1,126	933	
8 Ohio.....	McColpin, No. 7.....	498	Robinson-3.....	937		444	1,066		Dry No record.
9 Ohio.....	McColpin, No. 9.....	500	Robinson-1.....	937		443	1,067	940	150 Gas, 933 feet.
10 Ohio.....	McColpin, No. 13.....	498	do.....	937	24	382	1,119	867	Dry
11 Ohio.....	McColpin, No. 15.....	494	Robinson-2.....	931		386	1,134		25 Gas, 933 feet. Salt water, 986 feet.
12 Pure.....	Stewart Helz, No. 3.....	493	Robinson-2.....	966	56	373	1,127	886	No record.
13 Pure.....	Stewart Helz, No. 4.....	515	Robinson-1.....	965	15	352	1,146		60 Gas, 872 feet.
14 Pure.....	Stewart Helz, No. 5.....	513	Robinson-2.....	930	23	427	1,075	957	75
15 Pure.....	Stewart Helz, No. 6.....	509	Robinson-3.....	938	4	393	1,117		
			Robinson-1.....	920	21	405	1,060	975	25
			do.....	930	17	397	1,133	867	50
			Robinson-2.....	930	26	393	1,119		
			Robinson-3.....	928	7	419	1,081		
			Robinson-4.....	1,023	25	493	1,007	1,027	30
			Robinson-1.....	923	3	404	1,066		
			Robinson-4.....	920	4	492	1,068		
			Stray.....	1,045	2	547	953		
			Stray.....	1,109	3	611	869	1,122	Dry
16 Pure.....	Stewart Helz, No. 2.....	498	Robinson-1.....	935	25	398	1,102		No record.
17 Pure.....	Stewart Helz, No. 1.....	499	Robinson-4.....	931	21	434	1,016		
18 Peoples Oil and Gas Co..	Hopkins (lower 40), No. 4.....	497	Robinson-1.....	930	24	391	1,109		
19 Peoples Oil and Gas Co..	Hopkins (lower 40), No. 3.....	499	Robinson-3.....	932	20	463	1,037		
20 Peoples Oil and Gas Co..	Hopkins (lower 40), No. 5.....	499	Robinson-1.....	931	15	392	1,108		
21 Peoples Oil and Gas Co..	Hopkins (lower 40), No. 2.....	504	Robinson-3.....	940	7	441	1,059		
22 Peoples Oil and Gas Co..	Hopkins (lower 40), No. 1.....	509	Robinson-4.....	936	18	467	1,013		
1 Smith, Neely & Kerr.....	Shipman, No. 1.....	509	Robinson-3.....	950	10	446	1,054		
2 Smith, Neely & Kerr.....	Shipman, No. 2.....	508	Robinson-1.....	948	18	494	1,006		
3 Crescent.....	Hooker, No. 3.....	521	Robinson-3.....	936	6	388	1,112		
4 Crescent.....	Hooker, No. 2.....	513	Robinson-3.....	923	30	430	1,070		
5 Crescent.....	Hooker, No. 1.....	516	Robinson-2.....	922		411	1,069	940	Dry No record.
6 Crescent.....	Hooker, No. 4.....	517	Robinson-1.....	912	18	386	1,114	966	Light Well abandoned.
			Robinson-2.....	948	14	422	1,078		
			Robinson-1.....	930	27	377	1,123	960	
			Robinson-2.....	936	24	423	1,077	998	
			Robinson-3.....	978	22	460	1,040	1,038	Salt water, 1,004 feet.
			Stray.....	1,038	10	522	978	1,087	Well abandoned.
			Stray.....	1,067	8	571	929		No record.

## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
23— S. E.	7	Crescent.	Hooker, No. 5.	512	Robinson-1	855	.....	343	1,157	.....	.....	.....	No record.
	8	Ohio.	Hooker, No. 2.	512	Robinson-3	950	10	438	1,063	.....	966	26	.....
	9	Ohio.	Hooker, No. 3.	524	Robinson-1	916	6	392	1,106	.....	980	Light	.....
	10	Ohio.	Hooker, No. 4.	524	do.	918	6	394	1,106	.....	981	.....	.....
	11	Ohio.	Hooker, No. 1.	524	do.	919	30	395	1,105	.....	983	.....	.....
					Robinson-3	966	17	442	1,058	.....	.....	.....	.....
24— N. E. N. W.	1	Ohio.	O. Mann, No. 1.	529	Robinson-1	918	30	389	1,111	.....	.....	Dry	Salt water, 990 feet.
	1	Ohio.	Morrison, No. 1.	522	Robinson-3	960	15	413	1,067	.....	.....	.....	Slata, 950 to 983 feet.
	2	Ohio.	Morrison, No. 2.	525	Robinson-2	933	10	431	1,069	.....	.....	26	.....
	3	Morrison.	Weirich, No. 1.	517	Robinson-1	958	5	433	1,067	.....	.....	50	.....
	4	Morrison.	Weirich, No. 4.	527	Robinson-1	921	33	404	1,066	.....	932	50	Gas, 920 feet.
	5	Morrison.	Weirich, No. 3.	523	do.	920	49	393	1,107	.....	1,101	50	Gas, 922 feet.
S. W.	6	Morrison.	Weirich, No. 2.	522	Robinson-2	950	21	427	1,073	.....	.....	.....	.....
	1	Morrison.	Butler, No. 2.	523	Robinson-1	912	14	414	1,066	.....	.....	50	.....
	2	Morrison.	Butler, No. 1.	523	Robinson-3	936	.....	446	1,052	.....	.....	.....	.....
	3	Morrison.	Butler, No. 3.	508	Robinson-2	926	8	402	1,068	.....	983	3	.....
	4	Morrison.	Butler, No. 4.	518	Robinson-1	952	.....	459	1,041	.....	.....	.....	.....
	5	Red Bank.	Dyar, No. 1.	514	Robinson-2	921	29	417	1,083	.....	940	200	Show Gas, 922 feet.
	6	Red Bank.	Dyar, No. 2.	506	Robinson-3	940	.....	414	1,086	.....	.....	.....	.....
					Robinson-1	922	15	455	1,045	.....	983	.....	.....
					Robinson-3	907	.....	461	1,039	.....	.....	11	.....
					Robinson-1	933	.....	399	1,111	.....	926	26	.....

S. E.	7 Red Bank	Dyar, No. 4.	511	Robinson-1	885	18	374	1,126			40	
	8 Red Bank	Dyar, No. 3.	502	Robinson-3	948		437	1,063				
	9 Ohio	Smith, No. 4.	500	Robinson-1	872	30	370	1,130	887		28	
	10 Ohio	Smith, No. 2.	518	Robinson-3	905	65	458	1,042	960		8	
	11 Ohio	Smith, No. 3.	520	Robinson-3	969	11	451	1,049			10	
	12 Ohio	Smith, No. 1.	520	do.	965	10	445	1,055				
	1 Red Bank	Johnson, No. 3.	518	Robinson-1	928	27	403	1,097			100	
	2 Red Bank	Johnson, No. 2.	498	Robinson-2	952	19	432	1,068			Light Show	Salt water, 980 feet. Well abandoned.
	3 Red Bank	Johnson, No. 1.	498	Stray	851	10	363	1,137			Dry	Gas, 923 feet.
	1 Crescent	Johnson, No. 1.	497	Robinson-3	981	11	463	1,037				Salt water, 955 feet.
	2 Crescent	Johnson, No. 2.	498	Robinson-2	923	32	425	1,075				
	3 Haywood	Richart, No. 1.	495	Robinson-2	939	12	479	1,021	950			
N. E.	1 Mahutska	Wetrich, Heirs, No. 4.	491	Robinson-2	890	35	383	1,107				
	2 Mahutska	Wetrich, Heirs, No. 3.	497	Robinson-1	942	10	445	1,055				Quit in sand.
	3 Mahutska	Wetrich, Heirs, No. 2.	498	Robinson-3	960	5	463	1,037		965		
	4 Mahutska	Wetrich, Heirs, No. 1.	496	Robinson-1	885	25	387	1,113				
	5 Mahutska	Wetrich, Heirs, No. 5.	497	Robinson-2	935	12	437	1,053				Salt water, 976 feet.
	6 Mahutska	Wetrich, Heirs, No. 6.	498	Robinson-3	958	18	460	1,040				Coal, 725 feet.
	7 Mahutska	Wetrich, Heirs, No. 7.	499	Robinson-1	880	20	385	1,105			Dry	Salt water, 978 feet. Well abandoned.
	8 Mahutska	Wetrich, Heirs, No. 8.	497	Robinson-3	964	16	469	1,031				
	9 Mahutska	Wetrich, Heirs, No. 9.	492	Robinson-1	867	19	375	1,125				
	10 Mahutska	Wetrich, Heirs, No. 10.	491	Robinson-3	937	24	445	1,055	943			Salt water, 970 feet. Well abandoned.
	11 Mahutska	Wetrich, Heirs, No. 11.	496	do.	959	7	468	1,032				
	12 Mahutska	Wetrich, Heirs, No. 12.	497	Robinson-1	875	62	379	1,121		978	Dry	Salt water, 978 feet.
N. W.	1 Mahutska	Wetrich, Heirs, No. 1.	488	Robinson-3	962	13	466	1,034				
	2 Mahutska	Wetrich, Heirs, No. 2.	489	Robinson-1	849	31	352	1,148				
	3 Mahutska	Wetrich, Heirs, No. 3.	487	Stray	886	14	389	1,111				
	4 Mahutska	Wetrich, Heirs, No. 4.	483	Robinson-2	914	22	417	1,063				Salt water, 922 feet. Well abandoned.
	5 Mahutska	Wetrich, Heirs, No. 5.	483	Robinson-1	835	44	347	1,153				
	6 Mahutska	Wetrich, Heirs, No. 6.	488	Robinson-2	905	8	417	1,063				
	7 Mahutska	Wetrich, Heirs, No. 7.	489	Stray	922	11	434	1,066				
	8 Mahutska	Wetrich, Heirs, No. 8.	483	Robinson-3	950	20	462	1,038			Dry	
	9 Mahutska	Wetrich, Heirs, No. 9.	483	Robinson-1	838	28	345	1,153			Show	150
	10 Mahutska	Wetrich, Heirs, No. 10.	487	Robinson-2	909	28	416	1,064	835			
	11 Mahutska	Wetrich, Heirs, No. 11.	487	Robinson-3	956	9	463	1,037				
	12 Mahutska	Wetrich, Heirs, No. 12.	487	Robinson-1	853	17	356	1,144				
N. W.	1 Mahutska	Wetrich, Heirs, No. 1.	488	Robinson-2	927	6	480	1,070				
	2 Mahutska	Wetrich, Heirs, No. 2.	489	Robinson-3	960	6	463	1,037		966		
	3 Mahutska	Wetrich, Heirs, No. 3.	488	Robinson-1	860	15	356	1,144				
	4 Mahutska	Wetrich, Heirs, No. 4.	489	Robinson-2	914	46	410	1,060			150	
	5 Mahutska	Wetrich, Heirs, No. 5.	488	Robinson-1	890	32	384	1,116				
	6 Mahutska	Wetrich, Heirs, No. 6.	489	Robinson-3	934	6	438	1,063			150	
	7 Mahutska	Wetrich, Heirs, No. 7.	488	Robinson-1	860	10	352	1,148			Show	
	8 Mahutska	Wetrich, Heirs, No. 8.	489	Robinson-2	914	46	410	1,060			150	
	9 Mahutska	Wetrich, Heirs, No. 9.	488	Robinson-3	934	6	438	1,063				
	10 Mahutska	Wetrich, Heirs, No. 10.	489	Robinson-1	860	10	352	1,148				
	11 Mahutska	Wetrich, Heirs, No. 11.	488	Robinson-2	914	46	410	1,060				
	12 Mahutska	Wetrich, Heirs, No. 12.	489	Robinson-3	934	6	438	1,063				

## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
25— N W.	10	Mahutska.....	H. Weirich, No. 4.....	508	Robinson-1.....	866	15	358	1,142			150	
	11	Mahutska.....	H. Weirich, No. 10.....	503	Robinson-2.....	923	46	415	1,085				
	12	Mahutska.....	H. Weirich, No. 9.....	484	Robinson-1.....	835	25	332	1,188				
	13	Mahutska.....	H. Weirich, No. 1.....	498	Robinson-2.....	920	28	417	1,083	832			
	14	Mahutska.....	H. Weirich, No. 7.....	479	Robinson-1.....	830	27	336	1,164				
	1	Red Bank.....	Smith, No. 3.....	483	Robinson-2.....	903	35	419	1,081				
	2	Red Bank.....	Smith, No. 2 "B".....	473	Robinson-1.....	842	13	344	1,156			150	
	3	Red Bank.....	Smith, No. 1 "B".....	473	Robinson-2.....	914	32	416	1,084				
	4	Red Bank.....	Maxwell, No. 3.....	486	Robinson-1.....	824	14	345	1,155				
	5	Red Bank.....	Maxwell, No. 1.....	490	Robinson-2.....	898	60	409	1,091			150	
	6	Red Bank.....	Maxwell, No. 2.....	490	Robinson-1.....	815	11	342	1,158				No record.
	7	Red Bank.....	Maxwell, No. 4.....	488	Stray.....	902	25	429	1,071			50	
	8	Ohio.....	Smith, No. 1.....	469	Robinson-2.....	785	22	322	1,178				
	9	Ohio.....	Smith, No. 2.....	480	Robinson-1.....	842	32	369	1,131				
S W.	10	Ohio.....	Maxwell, No. 1.....	483	Robinson-2.....	830	10	344	1,156	912		10	
	11	Ohio.....	Maxwell, No. 2.....	484	Stray.....	912	15	426	1,074				
	12	Ohio.....	Maxwell, No. 3.....	483	Robinson-1.....	785	24	265	1,205			25	
					Stray.....	832	12	362	1,138	830		25	
					Robinson-2.....	815	15	325	1,175				
					Robinson-1.....	908	10	416	1,084				
					Robinson-3.....	830	8	342	1,158				
					Robinson-1.....	918	18	430	1,070			60	
					Robinson-2.....	808	30	339	1,161				
					Robinson-3.....	885	22	418	1,084				
					do.....	902	23	422	1,078			100	
					Robinson-1.....	906	7	423	1,077	832			
					Robinson-2.....	830	26	336	1,164				
					Robinson-1.....	866	9	411	1,069				
					Robinson-2.....	859	4	376	1,124				
					Maxwell, No. 3.....	910	18	427	1,073				

13 Ohio.....	Maxwell, No. 4.....	486	do.....	Robinson-3.....	891	13	405 1,095			13	No record
14 Whittaker.....	Doucumen, No. 1.....	477			937	18	451 1,046				do
15 Whittaker.....	Doucumen, No. 2.....	464									do
16 Whittaker.....	Doucumen, No. 3.....	465									do
17 Whittaker.....	Doucumen, No. 4.....	461									do
18 Whittaker.....	Doucumen, No. 5.....	481									do
19 Whittaker.....	Doucumen, No. 7.....	464									do
20 Morrison.....	C. Doucumen, No. 1.....	477			814	27	337 1,163				
21 Morrison.....	C. Doucumen, No. 4.....	485			917	19	440 1,060			100	
22 Morrison.....	C. Doucumen, No. 8.....	484			834	32	349 1,151			40	
23 Morrison.....	C. Doucumen, No. 3.....	472			849	20	365 1,135				
24 Morrison.....	C. Doucumen, No. 5.....	480			895		411 1,089				
25 Morrison.....	C. Doucumen, No. 6.....	475			907	8	423 1,077				Dry
1 American Oil & Development Co.....	Richart, No. 7.....	474			815		343 1,157				
2 American Oil & Development Co.....	Richart, No. 23.....	480			875	18	403 1,097			300	
3 Reel.....	Coulter, No. 2.....	489			824	36	344 1,156			50	
4 Reel.....	Coulter, No. 3.....	483			824		349 1,151				
1 Ohio.....	Dyar, No. 2.....	511			824	18	367 1,133			50	
2 Ohio.....	Dyar, No. 1.....	490			825		348 1,152			889	
3 Ohio.....	Dyar, No. 7.....	491			849	27	369 1,131			854	
4 Ohio.....	Dyar, No. 5.....	505			700	8	211 1,299				
5 Ohio.....	Dyar, No. 3.....	508			940	10	451 1,049				
6 Ohio.....	Dyar, No. 4.....	514			864	12	465 1,035			968	
7 Ohio.....	Dyar, No. 6.....	515			870		382 1,118				
8 Crawford & Mulligan.....	J. Wright, No. 17.....	514			922		434 1,066			945	
9 Crawford & Mulligan.....	J. Wright, No. 14.....	510									
10 Crawford & Mulligan.....	J. Wright, No. 10.....	510									
11 Crawford & Mulligan.....	J. Wright, No. 9.....	513									

S. E.

26-  
N. E.

## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.				
20— N. E.	12	Red Bank.	H mblin, No. 1 "R. B."	508	Robinson-1	853	17	345	1,155			
	13	Red Bank.	Hamblin, No. 2 "R. B."	508	Robinson-2	891	15	333	1,117		100	
	14	Red Bank.	Hamblin, No. 1 "B."	498	Robinson-1	847	30	341	1,159			
	15	Ohio.	Cullison-Wagner, No. 3	504	do	848	9	349	1,151			
	16	Ohio.	Cullison-Wagner, No. 1	499	Robinson-2	884	16	335	1,115			
	17	Ohio.	Cullison-Wagner, No. 2	494	Robinson-2	897	24	308	1,102	902		No record.
	18	Red Bank.	Weirich, No. 1	503	Shallow	480	25	+14	1,514			Gas, 520 feet.
	19	Red Bank.	Weirich, No. 2	506	Robinson-2	892	34	308	1,102	895	60	
	20	Wabash.	Weirich, No. 1	498	Robinson-3	845	11	342	1,158			
	21	Ohio.	Weirich, No. 5	498	Robinson-2	898	20	332	1,117	886		
	22	Ohio.	Weirich, No. 1	497	Robinson-3	846	10	446	1,054			
	23	Ohio.	Weirich, No. 3	495	Robinson-1	840	9	340	1,160			Gas 846 feet.
	24	Ohio.	Weirich, No. 6	498	Robinson-2	890	19	334	1,116		100	
	25	Ohio.	Weirich, No. 2	509	Robinson-1	843	50	345	1,155			
	26	Ohio.	Weirich, No. 4	498	Robinson-3	811	37	413	1,087			Gas, 845 feet.
N. W.	1	Crawford & Milligan.	J. Wright, No. 8	515	Robinson-2	879	4	331	1,153		150	
	2	Crawford & Milligan.	J. Wright, No. 5	508	Robinson-3	825	25	427	1,073	926		
	3	Crawford & Milligan.	J. Wright, No. 13	510	Robinson-3	810	30	413	1,087		200	
					Shallow	905	35	410	1,090		300	No record.
					Robinson-1	827	6	318	1,172		110	Gas, 830 feet.
					Robinson-2	825	15	327	1,170			
					Robinson-3	892	14	304	1,104	898		
					Robinson-1	846	2	324	1,175			
					Robinson-2	892	4	325	1,153			
					Robinson-3	907	12	392	1,108	908		No record.
					Robinson-1	853	7	343	1,157			
					Robinson-2	882	22	372	1,128			

4	Crawford & Milligan.....	J. Wright, No. 7.....	510	Robinson-1.....	840	6	370	1,170	.....	Show
				Robinson-2.....	884	4	374	1,126	.....	
				Robinson-3.....	904	12	394	1,096	.....	
5	Crawford & Milligan.....	J. Wright, No. 6.....	511	Robinson-4.....	883	12	478	1,022	.....	1000
				Robinson-1.....	883	28	342	1,159	.....	
				Robinson-2.....	840	10	334	1,099	.....	940
6	Crawford & Milligan.....	J. Wright, No. 3.....	506	Robinson-3.....	870	10	334	1,166	.....	
				Robinson-1.....	815	12	409	1,091	.....	888
				Robinson-2.....	862	5	346	1,154	.....	915
7	Crawford & Milligan.....	J. Wright, No. 16.....	516	Robinson-3.....	888	2	374	1,128	.....	
				Robinson-2.....	820	20	404	1,099	.....	972
8	Crawford & Milligan.....	J. Wright, No. 11.....	513	Robinson-1.....	855	5	342	1,159	.....	
				Robinson-2.....	863	41	390	1,120	.....	
9	Crawford & Milligan.....	J. Wright, No. 15.....	509	do.....	872	27	383	1,137	.....	
				Robinson-3.....	835	18	426	1,074	.....	963
10	Crawford & Milligan.....	J. Wright, No. 1.....	503	Robinson-2.....	880	32	377	1,123	.....	
				Robinson-3.....	917	6	414	1,086	.....	930
11	Crawford & Milligan.....	J. Wright, No. 2.....	502	Robinson-2.....	859	51	357	1,178	.....	873
				Stray.....	826	10	322	1,178	.....	
12	Crawford & Milligan.....	J. Wright, No. 12.....	503	Robinson-2.....	865	23	362	1,138	.....	
				Robinson-3.....	940	9	457	1,043	.....	969
				Stray.....	831	8	324	1,176	.....	
13	Crawford & Milligan.....	J. Wright, No. 4.....	507	Robinson-2.....	900	3	393	1,107	.....	
				Robinson-3.....	950	27	443	1,067	.....	977
14	Ohio.....	Thompson, No. 3.....	502	Stray.....	818	8	316	1,184	.....	
				Robinson-2.....	859	30	357	1,143	.....	870
15	Ohio.....	Thompson, No. 4.....	499	Robinson-1.....	838	20	339	1,161	.....	
				Robinson-2.....	870	18	371	1,129	.....	870
16	Parker-Edwards.....	Thompson, No. 6.....	503	Stray.....	820	18	317	1,183	.....	
				Robinson-2.....	865	10	392	1,118	.....	939
17	Parker-Edwards.....	Thompson, No. 5.....	498	Robinson-1.....	834	30	339	1,161	.....	
				Robinson-2.....	870	18	371	1,129	.....	910
18	Parker-Edwards.....	Thompson, No. 3.....	492	Stray.....	815	32	375	1,126	.....	
				Robinson-2.....	872	15	380	1,120	.....	
19	Ohio.....	Fowler, No. 1.....	490	Robinson-1.....	835	15	346	1,156	.....	
20	Ohio.....	Fowler, No. 2.....	496	Robinson-2.....	871	33	381	1,119	.....	120
21	Ohio.....	Fowler, No. 3.....	485	do.....	876	31	390	1,120	.....	80
22	Ohio.....	Fowler, No. 4.....	485	do.....	875	28	390	1,120	.....	80
23	Ohio.....	Fowler, No. 7.....	500	do.....	885	12	399	1,111	.....	880
24	Ohio.....	Fowler, No. 5.....	502	do.....	889	34	398	1,112	.....	800
25	Ohio.....	Fowler, No. 6.....	494	do.....	897	27	394	1,105	.....	904
1	Morrison.....	Hughes, No. 6.....	496	Robinson-1.....	867	35	373	1,127	.....	874
				Robinson-2.....	863	42	367	1,133	.....	200
2	Morrison.....	Hughes, No. 7.....	497	do.....	827	73	330	1,170	.....	872
3	Morrison.....	Hughes, No. 5.....	502	Robinson-2.....	905	7	408	1,092	.....	40
4	Morrison.....	Hughes, No. 8.....	498	do.....	896	35	394	1,106	.....	
5	Morrison.....	Hughes, No. 4.....	503	Robinson-1.....	862	45	367	1,133	.....	
6	Morrison.....	Hughes, No. 3.....	498	Robinson-2.....	831	16	436	1,064	.....	150
				Robinson-3.....	863	49	390	1,110	.....	
				Robinson-1.....	862	31	364	1,136	.....	
				Robinson-3.....	903	31	405	1,095	.....	

S. W.



## Crawford County—Honey Creek Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Total depth—feet.	Oil depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
6— N. W.	11	Ohio.....	G. Kersey, No. 1.....	464	814	26	350	1,150	820		50	Gas, 814 feet.....
	12	Ohio.....	G. Kersey, No. 2.....	463	855	11	421	1,070	890		25	Gas, 855 feet.....
	13	Riddle.....	Mann, No. 20.....	470	835	15	423	1,077	890			
	14	Riddle.....	Mann, No. 15.....	477	835	30	415	1,065			500	
	15	Riddle.....	Mann, No. 10.....	483	851	32	374	1,126			Show	
	16	Riddle.....	Mann, No. 9.....	490	864	19	376	1,124	899			
	1	Ohio.....	Frost, No. 1.....	484	925	15	437	1,063				
	2	Devonian.....	Frost, No. 1.....	481	866	10	370	1,130			40	Dry Salt water.....
	3	Devonian.....	Frost, No. 4.....	497	845	22	464	1,036	961	1,212		Salt water, 958 feet.....
	4	Devonian.....	Frost, No. 2.....	487	845	46	437	1,063		982	Show	Gas, 845 feet.....
S. E.	5	Devonian.....	Frost, No. 3.....	492	859	12	389	1,111		929		Gas, 838 feet.....
	1	Treat, Crawford & Treat.....	Boyd, No. 8.....	483	857	7	385	1,135			Light	
	2	Treat, Crawford & Treat.....	Boyd, No. 9.....	506	863	148	377	1,123	870	1,017		
	3	Treat, Crawford & Treat.....	Boyd, No. 5.....	494	863	40	380	1,120			Light	
	4	Treat, Crawford & Treat.....	Boyd, No. 4.....	481	864	46	370	1,130	884	914		No sands.
	5	Ohio.....	Boyd, No. 1.....	481	855	55	374	1,126	884		Light	Well abandoned.
	6	Ohio.....	Boyd, Hrs. No. 1.....	481	845		364	1,136			20	Gas, 845 feet.....
	7	Ohio.....	Boyd, Hrs. No. 2.....	481	860	15	439	1,061	862			Dry Salt water.....
	7	Ohio.....	Boyd, Hrs. No. 3.....	482	887	13	405	1,065	887		25	
	7	Ohio.....	Boyd, Hrs. No. 3.....	482	887	13	405	1,065	887		25	

7-	N. W.	1 Boles Slattery & Dunn	Munkhank, No. 1	482	Shallow	726	10	241	1,256		Show
	N. W.	2 Ohio	Longnecker, No. 1	546	Robinson-2	930	15	448	1,052	970	Show
	N. E.	1 Shaffer	Wesley, No. 1	533	do	1,070		524	976	1,075	Dry
	N. W.	1 Ohio	Goff, No. 1	571	Stray	923	18	352	1,148		Dry
	N. W.	1 Ohio	Goff, No. 1	571	do	950	15	370	1,121		Gas
	S. W.	1 Ohio	Goff, No. 2	521	Robinson-2	971	9	450	1,050		Gas, 960 feet
					Robinson-3	988	6	467	1,033	988	Gas, 988 feet. Salt water, 1,054 feet.—Well abandoned.
9-	S. W.	1 Leeper Bros.	Bishop, No. 1	475	do	945		490	1,010	985	Dry
10-	S. E.	1 Caldwell, et al.	Mullin, No. 1	480	Robinson-2	952	14	472	1,028	1,015	Dry
	N. E.	1 Craig & Lowrie	Young, No. 1	580	do	1,058	7	478	1,022	1,085	Dry
	S. W.	1 Shaffer	Vinsel, No. 3	571	Robinson-3	1,078	7	498	1,002		
		2 Shaffer	Vinsel, No. 10	562	Robinson-1	1,000	24	426	1,071	1,007	
		3 Shaffer	Vinsel, No. 9	567	do	997	26	433	1,065		Quit in sand.
		4 Shaffer	Vinsel, No. 5	572	do	1,000	19	433	1,067	1,000	
		5 Shaffer	Vinsel, No. 8	584	do	1,008	30	428	1,072	1,008	Quit in sand.
		6 Shaffer	Vinsel, No. 7	555	do	1,000	27	424	1,076	1,035	
		7 Linden	Maxwell, No. 8	580	do	1,000	22	445	1,055	1,010	do.
	S. E.	1 Linden	Maxwell, No. 1	580	do	990	108	401	1,099	992	30
		2 Linden	Maxwell, No. 2	585	do	1,007	20	427	1,073		150
		3 Linden	Maxwell, No. 3	574	do	1,003	35	418	1,082		150
		4 Linden	Maxwell, No. 4	576	do	983	35	409	1,091		150
		5 Linden	Maxwell, No. 6	570	do	996	31	420	1,080		300
		6 Linden	Maxwell, No. 7	579	do	997	31	427	1,073		
		7 Linden	Maxwell, No. 9	580	Robinson-2	1,031	21	451	1,082		75
		8 Linden	Maxwell, No. 11	595	Robinson-1	995	36	403	1,095	998	125
		9 Linden	Weger, No. 5	575	do	991	20	398	1,104		
		10 Craig & Lowrie	Weger, No. 3	583	Robinson-2	937	60	367	1,138	956	
		11 Craig & Lowrie	Weger, No. 2	561	Robinson-1	1,010	21	457	1,043	1,010	Quit in sand.
		12 Craig & Lowrie	Weger, No. 4	572	do	980	44	419	1,081	981	do.
		13 Craig & Lowrie	Weger, No. 6	573	do	988	37	418	1,084	996	do.
		14 Craig & Lowrie	Weger, No. 7	573	do	952	78	380	1,120	953	No sand record.
		15 Craig & Lowrie	H. Parker, No. 4	563	Robinson-1	983	35	430	1,070	997	Dry
15-	N. E.	1 Shaffer	H. Parker, No. 6	571	do	991	32	420	1,080	1,005	Salt water, 1,000 feet.
		2 Shaffer	H. Parker, No. 8	585	do	991	26	406	1,094	991	
		3 Shaffer	R. Weger, No. 5	570	do	984	34	405	1,095	1,018	Quit in sand.
		4 Craig & Lowrie	R. Weger, No. 6	580	do	980	47	400	1,100	981	do.
		5 Craig & Lowrie	R. Weger, No. 8	583	do	1,014	19	431	1,069	1,014	do.
		6 Craig & Lowrie	R. Weger, No. 9	566	do	1,013	17	417	1,083	1,030	do.
		7 Craig & Lowrie	R. Weger, No. 7	567	do	990	37	423	1,077	1,027	do.
		8 Craig & Lowrie	R. Weger, No. 3	575	do	985	49	410	1,090	1,034	do.
		9 Craig & Lowrie	R. Weger, No. 10	554	do	998	35	425	1,075	1,033	do.
		10 Craig & Lowrie		573	do						No record
		11 Craig & Lowrie		573	do						Dry

## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
26— S. E...	21	Whitaker.....	Doucunnen, No. 4.....	487	Shallow.....	475	5	+12	1,512	.....	.....	.....	.....
					Robinson-2.....	898	.....	411	1,089	.....	.....	.....	.....
	22	Whitaker.....	Doucunnen, No. 3.....	486	Robinson-3.....	921	33	434	1,066	.....	.....	.....	.....
					Robinson-2.....	895	.....	409	1,091	.....	940	.....	Quit in sand.....
	23	Whitaker.....	Doucunnen, No. 2.....	487	Robinson-3.....	920	20	434	1,066	.....	.....	.....	.....
					Robinson-2.....	895	.....	408	1,092	.....	.....	.....	.....
	24	Whitaker.....	Doucunnen, No. 1.....	486	Robinson-3.....	918	26	431	1,069	.....	944	.....	Quit in sand.....
					Robinson-1.....	820	10	334	1,166	.....	.....	.....	.....
					Robinson-3.....	920	20	434	1,066	.....	940	.....	Quit in sand.....
	25	Ohio.....	Fry, No. 1.....	482	Robinson-1.....	818	20	336	1,164	.....	.....	.....	.....
					Robinson-3.....	896	22	414	1,086	.....	.....	.....	.....
	26	Ohio.....	Fry, No. 2.....	484	Robinson-1.....	822	.....	338	1,162	.....	.....	.....	.....
					Robinson-3.....	914	14	430	1,070	920	.....	.....	.....
	27	Ohio.....	Fry, No. 3.....	488	Robinson-1.....	835	27	347	1,153	.....	.....	.....	.....
					Robinson-3.....	920	12	432	1,068	.....	.....	100	Gas, 820 feet.....
	28	Ohio.....	Fry, No. 4.....	485	Robinson-1.....	895	25	410	1,090	.....	.....	128	Gas, 830 feet.....
					Robinson-3.....	830	15	349	1,151	900	.....	80	.....
	29	Ohio.....	Fry, No. 5.....	481	Robinson-1.....	899	13	418	1,092	900	.....	.....	.....
					Robinson-3.....	810	30	326	1,174	.....	.....	100	.....
	30	Red Bank.....	Fry, No. 2 "R B".....	484	Robinson-1.....	874	16	380	1,110	.....	.....	.....	.....
	31	Red Bank.....	Fry, No. 2 "B".....	477	Robinson-1.....	832	30	355	1,145	882	.....	100	.....
					Robinson-2.....	892	.....	405	1,095	.....	.....	.....	.....
	32	Red Bank.....	Fry, No. 1 "B".....	487	Robinson-1.....	824	37	337	1,163	.....	.....	75	.....
					Robinson-2.....	900	24	413	1,087	902	.....	.....	.....
	33	Red Bank.....	Fry, No. 3 "B".....	478	Robinson-1.....	812	13	334	1,164	.....	.....	100	.....
					Robinson-2.....	888	38	410	1,090	.....	.....	.....	Gas, 830 feet.....
	34	Red Bank.....	Fry, No. 1 "R B".....	479	Robinson-1.....	825	.....	346	1,154	.....	.....	100	.....
					Robinson-3.....	901	19	422	1,075	915	.....	.....	76 Gas, 946 feet.....
27— N. E...	1	Ohio.....	McColpin, No. 16.....	489	Robinson-1.....	835	5	346	1,154	946	.....	120	Gas, 862 feet.....
	2	Ohio.....	McColpin, No. 14.....	483	Robinson-3.....	943	32	454	1,046	.....	.....	.....	.....
					Robinson-2.....	855	39	373	1,127	.....	.....	.....	.....

3	Ohio	McColpin, No. 11.	485	do	883	378	1,122	870	70	
4	Ohio	McColpin, No. 10.	491	do	860	369	1,131	872	100	Gas, 870 feet.
5	Parker-Edwards	Thompson, No. 1.	486	Shallow	460	+26	1,526			
6	Parker-Edwards	Thompson, No. 2.	484	Robinson-1	838	352	1,148			
7	Parker-Edwards	Thompson, No. 4.	480	Robinson-2	839	373	1,127			885
8	Parker-Edwards	Thompson, No. 7.	481	Shallow	465	+19	1,519			
9	Parker-Edwards	Thompson, No. 8.	486	Robinson-2	862	378	1,122			
10	Ohio	Thompson, No. 1.	482	Robinson-2	886	402	1,088			
11	Ohio	Thompson, No. 2.	484	Shallow	461	325	1,175			912
12	North Fork	G. Walker, No. 4.	487	Robinson-2	861	381	1,119			
13	North Fork	G. Walker, No. 9.	487	Shallow	447	+34	1,534			476
14	North Fork	G. Walker, No. 5.	486	do	449	24	1,537			
15	North Fork	G. Walker, No. 8.	487	Robinson-2	847	18	365	1,135		
16	North Fork	G. Walker, No. 10.	478	Robinson-3	935	46	453	1,047		
17	North Fork	G. Walker, No. 2.	488	Robinson-2	860	31	363	1,137		
18	North Fork	G. Walker, No. 1.	482	Robinson-1	834	319	1,181			
19	Ohio	McColpin, No. 8.	486	Robinson-2	860	40	373	1,127		
20	Ohio	McColpin, No. 12.	489	Robinson-1	834	347	1,153			Gas, 852 feet.
21	Ohio	McColpin, No. 17.	487	Robinson-2	888	411	1,089	898	917	
22	Ohio	McColpin, No. 18.	484	Robinson-1	848	362	1,138	862	933	
1	Bruner	Hughes, No. 4.	482	Robinson-2	885	399	1,101	862		
2	Bruner	Hughes, No. 1.	482	Robinson-3	932	558	1,142			Salt water, 859 feet.
3	Bruner	Hughes, No. 5.	473	Shallow	430	327	1,173			
4	Bruner	Hughes, No. 2.	473	Robinson-2	840	352	1,148			
5	Bruner	Hughes, No. 10.	478	Robinson-3	935	+52	1,552			
6	Bruner	Hughes, No. 7.	481	Robinson-2	860	328	1,172			
7	Bruner	Hughes, No. 9.	478	Robinson-3	933	404	1,096			
8	Bruner	Hughes, No. 3.	486	Robinson-2	860	453	1,047			
9	Bruner	Hughes, No. 6.	485	Robinson-3	940	466	1,034			
				Robinson-2	838	374	1,126			10 Gas, 854 feet.
				Robinson-1	840	371	1,137			150 Gas, 855 feet.
				Robinson-2	840	363	1,137			60 Gas, 855 feet.
				Robinson-3	941	457	1,043	943		75 Gas, 943 feet.
				Robinson-1	838	421	1,079			
				Robinson-2	840	458	1,042			Dry
				Robinson-3	940					Salt water, 980 feet. Gas, 940 feet.
				Robinson-1	838	396	1,104	858		
				Robinson-2	840	367	1,133			
				Robinson-3	940	427	1,073	947	962	
				Robinson-1	818	345	1,155			
				Robinson-2	832	459	1,041	947	957	
				Robinson-3	932	25	439	1,041		
				Robinson-1	830	352	1,148	830		
				Robinson-2	840	437	1,063	928	967	
				Robinson-3	915	60	341	1,059		
				Robinson-1	822	341	1,059	840	892	Gas, 822 feet.
				Robinson-2	840	359	1,141	840		
				Robinson-3	932	5	454	1,046	963	Quit in sand.
				Robinson-1	812	10	326	1,174	855	
				Robinson-2	850	36	364	1,136	880	
				Robinson-3	931	346	1,154	853	888	

N. W.

## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
27— N. W.	10	Bruner.	Hughes, No. 8.	482	{	822	6	340	1,160			
						834	15	352	1,148	834		
						870	20	388	1,112	870		
						432	15	+46	1,546	891	Good	
						458	15	+20	1,520			
						975	50	487	1,003			
						958	42	482	1,018			
						477	60	525	1,410			
						995	60	525	1,410			
						946	40	492	1,008			
						946	60	473	1,027			
						945	65	476	1,024			
						974	6	498	1,001	975	10	Gas, 975 feet. Salt water, 999 feet.
						910	10	437	1,083			
						942	23	469	1,031			
						849	27	375	1,125			
						894	11	420	1,080			
						900	20	421	1,079	905	150	Gas, 901 feet
						874	41	412	1,088	874	300	Gas, 874 feet.
						816	463	344	1,556			
						890	32	408	1,092	890	200	Gas, 890 feet
						880	32	403	1,097	885	75	Gas, 885 feet.
						932	32	375	1,125	934	100	Gas, 935 feet.
						940	32	368	1,132	945	50	Gas, 940 feet.
						940	32	368	1,132	945	50	Gas, 940 feet.
						850	26	371	1,298	860		
						891	25	402	1,098			
						893	37	393	1,077	897	300	Gas, 894 feet
						851	37	372	1,128	860	400	Gas, 851 feet
						447	27	+24	1,524	455	100	Gas, 450 feet. Salt water, 474 feet.
						871	37	401	1,099	880	500	Gas, 873 feet.
S. W.	10	Ohio.	C. Dennis, No. 6.	470	{	871	37	401	1,099	880		
						871	37	401	1,099	880		
						871	37	401	1,099	880		
						871	37	401	1,099	880		
						871	37	401	1,099	880		
						871	37	401	1,099	880		
						871	37	401	1,099	880		
						871	37	401	1,099	880		
						871	37	401	1,099	880		
						871	37	401	1,099	880		

7 Ohio	Highsmith, No. 4.	463	Robinson-2	905	12	443	1,057	50	.....
8 Ohio	Highsmith, No. 1.	468	Robinson-3	932	11	470	1,030	.....	Dry Salt water, 975 feet.
9 Ohio	Highsmith, No. 2.	462	Robinson-2	905	5	437	1,063	.....	Dry No sands.
10 Ohio	Highsmith, No. 5.	458	Robinson-2	.....	.....	.....	.....	.....	Dry Salt water, 992 feet.
11 Ohio	Highsmith, No. 6.	457	Robinson-4	990	.....	532	998	.....	Dry Gas, 873 feet.
12 Ohio	Highsmith, No. 3.	457	Robinson-1	873	17	416	1,084	.....	.....
13 Red Bank	Highsmith, No. 3.	457	Robinson-3	919	12	462	1,038	920	.....
14 Red Bank	Highsmith, No. 1.	457	Robinson-1	874	40	417	1,083	.....	.....
.....	Highsmith, No. 1.	457	do	870	43	413	1,087	840	.....
.....	Highsmith, No. 2.	457	do	874	.....	417	1,083	.....	.....
15 Morrison	Highsmith, No. 2.	457	Robinson-3	940	34	483	1,017	940	.....
.....	Highsmith, No. 1.	465	Robinson-2	890	.....	425	1,075	.....	Rapid decline of well.
.....	Highsmith, No. 1.	465	Robinson-3	938	26	493	1,002	958	Abandoned
16 Morrison	Highsmith, No. 2.	470	Robinson-2	904	.....	434	1,066	.....	Low gravity oil.
.....	Highsmith, No. 2.	470	Robinson-3	958	20	498	1,012	.....	80 Well abandoned
17 Morrison	Highsmith, No. 4.	457	Stray	844	.....	387	1,113	.....	Gas, 844 feet.
18 Red Bank	Highsmith, No. 5.	456	Robinson-2	899	43	442	1,088	.....	80 Well abandoned.
19 Red Bank	Highsmith, No. 4.	456	Robinson-2	880	39	424	1,076	890	.....
.....	Highsmith, No. 4.	456	Robinson-2	888	39	432	1,068	887	.....
20 Red Bank	Highsmith, No. 6.	455	Stray	827	.....	372	1,128	.....	.....
.....	Highsmith, No. 6.	455	Robinson-1	873	49	418	1,082	25	.....
21 Morrison	Highsmith, No. 3.	456	Stray	830	.....	374	1,126	.....	Gas, 832 feet.
.....	Highsmith, No. 3.	456	Robinson-2	900	38	444	1,056	.....	80 Well abandoned because of rapid decline.
22 Red Bank	Highsmith, No. 3.	457	Robinson-1	848	.....	391	1,109	.....	.....
.....	Highsmith, No. 3.	457	Robinson-2	892	30	435	1,065	25	.....
1 Treat, Crawford & Treat.	Highsmith, No. 1.	531	Stray	855	.....	324	1,176	.....	Show
2 Ohio	Richey, No. 5.	498	Robinson-1	935	17	404	1,096	.....	Gas, 325 pounds pressure.
3 Ohio	Richey, No. 3.	528	Robinson-1	.....	.....	.....	.....	.....	Dry No record.
4 Ohio	Richey, No. 1.	525	Robinson-2	958	7	433	1,037	1,100	Dry No record.
5 Ohio	Richey, No. 4.	509	Robinson-1	988	7	463	1,037	.....	.....
6 Ohio	Richey, No. 2.	482	Robinson-3	925	.....	416	1,084	956	Light Gas, 954 feet.
1 Red Bank	McCarter, No. 1.	495	Robinson-3	920	.....	478	1,022	975	Light Salt water, 1058 feet.
2 Ohio	Bartlet, No. 1.	486	Robinson-3	937	16	425	1,075	930	Light Gas, 925 feet.
1 Ohio	Crum, No. 1.	481	Robinson-3	924	.....	451	1,049	939	Gas, 954 feet. Well abandoned.
.....	Crum, No. 1.	481	Robinson-3	924	.....	443	1,057	954	.....
2 Ohio	Crum, No. 4.	490	Robinson-3	944	14	464	1,036	950	Gas, 944 feet.
3 Ohio	Crum, No. 7.	476	Robinson-3	940	25	464	1,036	950	2 Gas, 940 feet.
4 Ohio	Crum, No. 3.	459	Robinson-2	905	.....	446	1,054	913	45 Gas, 913 feet.
5 Ohio	Crum, No. 5.	464	Robinson-4	960	5	496	1,004	963	4 Gas, 960 feet.
6 Ohio	Crum, No. 2.	469	Robinson-4	975	14	511	989	.....	Salt water, 994 feet.
7 Ohio	Crum, No. 6.	465	Robinson-3	942	21	473	1,027	953	25 Gas, 950 feet.
8 Red Bank	Siler, No. 1.	465	Robinson-3	937	19	472	1,028	941	10 Gas, 937 feet.
9 Red Bank	Siler, No. 2.	467	Robinson-2	913	32	447	1,053	920	.....
10 Red Bank	Siler, No. 3.	485	Robinson-2	.....	.....	.....	.....	.....	No record.
1 Red Bank	Highsmith, No. 1.	479	Robinson-3	961	.....	482	1,018	.....	Dry No record.
2 Wilcox & Schuler	Jackson, No. 3.	504	Robinson-3	.....	.....	.....	.....	.....	Dry Salt water, 1,040 feet.



25 North Fork.....	Hicks, No. 8.....	496	{ Stray..... Robinson-1.....	839 872	16	344 377	1,156 1,123	842 878	.....	Gas, 896 feet. Salt water. 906 feet.
26 North Fork.....	Hicks, No. 9.....	498	{ Stray..... Robinson-1..... Robinson-2..... Robinson-3.....	846 877 890 920	27 10 21 20	347 379 392 422	1,153 1,121 1,108 1,078	.....	Salt water.	
27 North Fork.....	Hicks, No. 10.....	496	{ Stray..... Robinson-1..... Robinson-2..... Robinson-3.....	850 883 911 928	20 23 12 27	355 388 416 433	1,146 1,112 1,094 1,067	.....	.....	
28 North Fork.....	Hicks, No. 13.....	493	{ Robinson-1..... Robinson-2..... Robinson-3.....	895 880 920	8 7 20	372 387 427	1,128 1,113 1,073	.....	962	
1 Mahutska.....	Carleton, No. 7.....	474	{ Robinson-1.....	857	22	383	1,117	.....	.....	
2 Mahutska.....	Carleton, No. 1.....	465	{ Robinson-2..... do.....	913 885	12 37	439 420	1,061 1,080	200 20	.....	
3 Mahutska.....	Carleton, No. 4.....	456	{ Robinson-1.....	844	11	388	1,112	.....	.....	
4 Mahutska.....	Carleton, No. 5.....	473	{ Robinson-2..... Robinson-1.....	875 865	27 38	419 392	1,081 1,108	200	.....	
5 Mahutska.....	Carleton, No. 6.....	458	{ Robinson-2..... Shallow.....	906 435	34 11	433 +23	1,067 1,523	100 200	.....	
6 Mahutska.....	Carleton, No. 2.....	462	{ Robinson-3..... Robinson-1..... do.....	918 867 868	27 97 6	460 405 406	1,040 1,065 1,064	150 Show	Sand, broken.	
7 Mahutska.....	Carleton, No. 3.....	462	{ Robinson-2..... Robinson-3.....	895 918	11 14	433 456	1,067 1,044	250	.....	
8 Mahutska.....	Carleton, No. 8.....	462	{ Robinson-1.....	873	6	411	1,089	.....	.....	
9 Mahutska.....	Carleton, No. 9.....	474	{ Robinson-2.....	890	60	428	1,072	.....	.....	
10 Mahutska.....	Carleton, No. 10.....	463	{ Robinson-1..... Robinson-2..... Robinson-3.....	861 896 851	8 60 12	387 412 398	1,113 1,068 1,112	.....	.....	
11 Homestead.....	Stewart, No. 5.....	469	{ Robinson-1..... Robinson-2..... Robinson-3.....	887 908 872	26 22 10	418 445 446	1,082 1,055 1,054	970 Dry	.....	
12 Homestead.....	Stewart, No. 6.....	474	{ Robinson-1..... Robinson-3..... Robinson-4.....	920 943 893	..... 7 22	398 409 416	1,102 1,054 1,064	.....	.....	
13 Homestead.....	Stewart, No. 7.....	477	{ Robinson-1..... Robinson-2..... Robinson-3.....	933 922 903	22 12 .....	456 505 440	1,044 966 1,060	.....	.....	
14 C. K. Brown.....	Stewart, No. 1.....	463	{ do.....	.....	.....	.....	.....	951	Salt water, 976 feet. Well abandoned.	
15 Bruner.....	To III, No. 1.....	462	{ Stray..... Robinson-1..... Robinson-3.....	827 847 947	..... 18 15	365 385 485	1,135 1,115 1,015	.....	.....	
1 Ohio.....	Ballley, No. 2.....	461	{ Robinson-1.....	870	23	409	1,091	876	Quit in sand.	
2 Ohio.....	Ballley, No. 1.....	467	{ do.....	935	24	474	1,026	935	.....	
3 Ohio.....	Ballley, No. 5.....	468	{ Robinson-1..... Robinson-2.....	895 917	5 11	427 449	1,073 1,051	.....	.....	

28—  
N. E....

N. W....





5	Haselwood	Wilson, No. 1	437	Stray Robinson-1	744	20	307	1,193				Gas. Well abandoned
6	Red Bank	F. Frost, No. 2	441	do	803	32	326	1,134	100			
7	Red Bank	F. Frost, No. 3	440	do	773	22	332	1,108				
8	Ohio	L. Smith, No. 1	442	do	766	18	326	1,174	40			
9	Ohio	A. Mann, Acct. 2, No. 1	443	do	875	8	435	1,065	30			Gas, 965 feet. Salt water, 880 feet.
10	Ohio	A. Mann, Acct. 2, No. 1	443	do	865	15	423	1,077	868			Gas, 965 feet. Salt water, 880 feet.
11	Ohio	A. Mann, Acct. 2, No. 5	443	do	866	19	423	1,077	871			Gas, 965 feet. Salt water, 885 feet.
12	Ohio	A. Mann, Acct. 2, No. 2	438	do	861	149	418	1,083				Well abandoned.
13	Ohio	A. Mann, Acct. 2, No. 3	442	do	864		426	1,074	868			Gas, 864 feet.
14	Ohio	A. Mann, Acct. 2, No. 3	442	do	856		414	1,086	890			Gas, 856 feet. Salt water, 871 feet.
15	Ohio	A. Mann, Acct. 2, No. 4	437	do	845	20	408	1,092				Gas, 845 feet.
16	Treat, Crawford & Treat	A. Mann, Acct. 2, No. 6	434	Robinson-2	837	43	390	1,110	855			Gas, 845 ft., 3,000,000 cu. ft.
17	Fertig Bros.	Due, No. 1	434	Robinson-3	906	15	472	1,028				Gas, 827 feet.
18	Fertig Bros.	Parker, No. 3	436	Robinson-1	704	10	338	1,112				Gas, 827 feet.
19	Fertig Bros.	Parker, No. 2	465	Robinson-3	890	10	444	1,056	890			Gas, 880 feet.
20	Fertig Bros.	Parker No. 1	460	Robinson-2	853	5	398	1,102				No record.
21	Fertig Bros.	Haskins, No. 1	439	Robinson-3	899		429	1,071	889	908		Quit in sand.
22	Fertig Bros.	Haskins, No. 4	446	Robinson-2	752		313	1,187				Salt water, 892 feet.
23	Fertig Bros.	Haskins, No. 8	454	do	845	81	372	1,128				Salt water, 894 feet.
24	Fertig Bros.	Haskins, No. 7	455	Robinson-1	815	49	399	1,101	894			Gas, 817 feet and 965 feet.
25	Fertig Bros.	Haskins, No. 6	448	Robinson-2	860	56	405	1,095	881			Gas, 965 feet. Salt water, 916 feet.
26	Fertig Bros.	Haskins, No. 5	457	Robinson-3	875	37	427	1,073	912			Quit in sand.
27	Fertig Bros.	Haskins, No. 3	450	Robinson-2	868	48	411	1,089	903	916		Gas, 898 feet and 892 feet.
28	Fertig Bros.	Haskins, No. 2	446	Robinson-1	830	18	380	1,120	843			
29	Fertig Bros.	Mulvane, No. 2	460	Robinson-3	839	20	439	1,061				
30	Fertig Bros.	Mulvane, No. 3	462	Robinson-2	860	37	414	1,096				
31	Fertig Bros.	Mulvane, No. 4	464	Robinson-1	831	18	371	1,129	825			Quit in sand.
32	Fertig Bros.	Mulvane, No. 1	461	Robinson-3	895	22	435	1,065	895	917		Gas, 895 feet.
33	Fertig Bros.	O. E. & J. C. Eagleton, No. 4	457	Robinson-2	880	35	428	1,072	907			Stray.
34	Fertig Bros.	O. E. & J. C. Eagleton, No. 1	458	Robinson-3	830	2	366	1,134	366	1,134		Gas, 892 feet.
35	Fertig Bros.	O. E. & J. C. Eagleton, No. 2	458	Robinson-2	880	29	426	1,074	910			No record.
36	Fertig Bros.	O. E. & J. C. Eagleton, No. 3	458	Robinson-3	857	29	423	1,071	900	919		Quit in sand.
37	Fertig Bros.	O. E. & J. C. Eagleton, No. 4	458	Robinson-2	857	399	1,101	897	921			Gas, 897 feet. Salt water, 921 feet.
38	Fertig Bros.	O. E. & J. C. Eagleton, No. 5	454	Shallow	678	23	224	1,276	100			Salt water, 694 feet.
39	Fertig Bros.	O. E. & J. C. Eagleton, No. 6	451	Shallow	678	16	227	1,273	25			Gas, 860 feet.
40	Fertig Bros.	O. E. & J. C. Eagleton, No. 7	451	Robinson-2	855	10	400	1,100	35			Salt water, 920 feet.
41	Fertig Bros.	O. E. & J. C. Eagleton, No. 8	453	Robinson-3	893	438	438	1,062	898			Gas, 965 feet.
42	Fertig Bros.	O. E. & J. C. Eagleton, No. 9	461	do	890	24	429	1,071	900			Gas, 898 feet. Salt water, 917 feet.
43	Fertig Bros.	O. E. & J. C. Eagleton, No. 10	456	do	898	19	442	1,053	910			Gas, 898 feet. Salt water, 917 feet.
44	Fertig Bros.	O. E. & J. C. Eagleton, No. 11	450	do	898	17	446	1,054	896			Gas, 898 feet.
45	Fertig Bros.	O. E. & J. C. Eagleton, No. 12	449	do	893	23	441	1,059	893			Gas, 893 feet.
46	Fertig Bros.	O. E. & J. C. Eagleton, No. 13	459	do	901	17	442	1,053	905			Gas, 904 feet.

S. W.

S. E.

## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face ele-va-tion—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
28— N. W...	4	Ohio.....	Bailey, No. 2.....	468	{ Stray..... Robinson-2..... Robinson-3..... Robinson-1..... do..... Robinson-3.....	837 892 905 932 877 862 972	10 15 424 5 466 26 404 501	1,111 1,076 1,061 1,034 1,089 1,088 999	.....	907	.....	Salt water, 892 feet. Gas, 905 feet. 50 70 Gas, 879 feet. 15 Gas, 862 feet. 3 Gas, 972 feet. Salt water, 1002 feet.
	5	Ohio.....	Bailey, No. 4.....	466	{ Stray..... Robinson-3..... Robinson-1..... do..... Robinson-3.....	845 904 895 907 900	6 21 15 13 29	380 522 531 531 434	1,120 978 981 969 1,066	915	Dry	Salt water.
	6	Ohio.....	Bailey, No. 7.....	472	{ Robinson-1..... Robinson-3..... Robinson-2..... Robinson-3..... do.....	994 885 1,007 939 927	.....	522 419 531 434 473	978 981 969 1,066 1,027	994	Dry	Salt water.
	7	Ohio.....	Bailey, No. 6.....	476	{ Robinson-1..... Robinson-3..... Robinson-2..... Robinson-3..... do.....	907 900 939 927 927	.....	522 419 531 434 473	978 981 969 1,066 1,027	1,039	Dry	Salt water, 1039 feet.
	8	Ohio.....	Bailey, No. 8.....	466	{ Robinson-1..... Robinson-3..... Robinson-2..... Robinson-3..... do.....	907 900 939 927 927	.....	522 419 531 434 473	978 981 969 1,066 1,027	968	.....	Quit in sand Salt water, 951 feet. Quit in sand.
	9	McArthur.....	Bailey, No. 1.....	470	{ Robinson-1..... Robinson-3..... Robinson-2..... Robinson-3..... do.....	883 926 912 862 898	23 18 35 20 13	407 450 439 392 402	1,063 1,050 1,061 1,072 1,068	936	Show	Quit in sand
	10	Ohio.....	McColpin, No. 1.....	476	{ Robinson-1..... Robinson-3..... Robinson-2..... Robinson-3..... do.....	883 926 912 862 898	23 18 35 20 13	407 450 439 392 402	1,063 1,050 1,061 1,072 1,068	926	.....	Quit in sand
	11	Ohio.....	Stewart, No. 1.....	473	{ Robinson-1..... Robinson-3..... Robinson-2..... Robinson-3..... do.....	883 926 912 862 898	23 18 35 20 13	407 450 439 392 402	1,063 1,050 1,061 1,072 1,068	935	.....	Quit in sand
S. E...	1	Homestead.....	Stewart, No. 2.....	476	{ Robinson-1..... Robinson-3..... Robinson-2..... Robinson-3..... do.....	883 926 912 862 898	23 18 35 20 13	407 450 439 392 402	1,063 1,050 1,061 1,072 1,068	946	.....	Salt water, 946 feet. Quit in sand.
	2	Homestead.....	Stewart, No. 3.....	473	{ Robinson-1..... Robinson-3..... Robinson-2..... Robinson-3..... do.....	883 926 912 862 898	23 18 35 20 13	407 450 439 392 402	1,063 1,050 1,061 1,072 1,068	935	.....	Quit in sand
	3	Homestead.....	Stewart, No. 4.....	473	{ Robinson-1..... Robinson-3..... Robinson-2..... Robinson-3..... do.....	883 926 912 862 898	23 18 35 20 13	407 450 439 392 402	1,063 1,050 1,061 1,072 1,068	946	.....	Salt water, 946 feet. Quit in sand.
	4	Homestead.....	Stewart, No. 5.....	473	{ Robinson-1..... Robinson-3..... Robinson-2..... Robinson-3..... do.....	883 926 912 862 898	23 18 35 20 13	407 450 439 392 402	1,063 1,050 1,061 1,072 1,068	935	.....	Quit in sand
	5	Brumer.....	Tohill, No. 8.....	473	{ Robinson-1..... Robinson-3..... Robinson-2..... Robinson-3..... do.....	883 926 912 862 898	23 18 35 20 13	407 450 439 392 402	1,063 1,050 1,061 1,072 1,068	946	.....	Salt water, 946 feet. Quit in sand.
	6	Brumer.....	Tohill, No. 7.....	473	{ Robinson-1..... Robinson-3..... Robinson-2..... Robinson-3..... do.....	883 926 912 862 898	23 18 35 20 13	407 450 439 392 402	1,063 1,050 1,061 1,072 1,068	935	.....	Quit in sand
	7	Brumer.....	Tohill, No. 6.....	473	{ Robinson-1..... Robinson-3..... Robinson-2..... Robinson-3..... do.....	883 926 912 862 898	23 18 35 20 13	407 450 439 392 402	1,063 1,050 1,061 1,072 1,068	935	.....	Quit in sand
	8	Brumer.....	Tohill, No. 5.....	473	{ Robinson-1..... Robinson-3..... Robinson-2..... Robinson-3..... do.....	883 926 912 862 898	23 18 35 20 13	407 450 439 392 402	1,063 1,050 1,061 1,072 1,068	946	.....	Salt water, 946 feet. Quit in sand.
S. E...	9	Brumer.....	Tohill, No. 4.....	473	{ Robinson-1..... Robinson-3..... Robinson-2..... Robinson-3..... do.....	883 926 912 862 898	23 18 35 20 13	407 450 439 392 402	1,063 1,050 1,061 1,072 1,068	935	.....	Quit in sand
	10	Brumer.....	Tohill, No. 3.....	471	{ Robinson-1..... Robinson-3..... Robinson-2..... Robinson-3..... do.....	883 926 912 862 898	23 18 35 20 13	407 450 439 392 402	1,063 1,050 1,061 1,072 1,068	935	.....	Quit in sand
	11	Brumer.....	Tohill, No. 2.....	473	{ Robinson-1..... Robinson-3..... Robinson-2..... Robinson-3..... do.....	883 926 912 862 898	23 18 35 20 13	407 450 439 392 402	1,063 1,050 1,061 1,072 1,068	941	.....	Quit in sand
	12	Brumer.....	Tohill, No. 1.....	473	{ Robinson-1..... Robinson-3..... Robinson-2..... Robinson-3..... do.....	883 926 912 862 898	23 18 35 20 13	407 450 439 392 402	1,063 1,050 1,061 1,072 1,068	926	.....	Quit in sand



## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
2—S. E.	12	P. Ewing.	Randolph, No. 1.	453	Robinson-1	853	20	400	1,100			No record
	13	P. Ewing.	Randolph, No. 4.	451								do.
	14	P. Ewing.	Randolph, No. 6.	452	Robinson-1	885	15	401	1,099			
	1	Pure.	S. Shipman, No. 3.	464	Robinson-3	915	17	431	1,098		10	
3—N. E.	2	Pure.	S. Shipman, No. 7.	485	do.	832	18	447	1,033	950		
	3	Pure.	S. Shipman, No. 6.	487	Robinson-2	925	12	439	1,081	926		
	4	Pure.	S. Shipman, No. 4.	490	Robinson-3	943	29	456	1,044	943		
	5	Pure.	S. Shipman, No. 5.	481	Robinson-3	920	23	430	1,070			15 Slate, 943 to 1,006 feet.
	6	Pure.	S. Shipman, No. 1.	476	Robinson-3	1,006	11	516	984			
	7	Pure.	S. Shipman, No. 2.	490	Robinson-3	890	25	399	1,101	960		20 Slate, 905 to 935 feet.
	8	Pure.	Lamb, No. 6.	477	Robinson-2	935	18	454	1,046	919		
	9	Ohio.	Lamb, No. 7.	478	do.	911	22	414	1,066	928		
	10	Ohio.	Lamb, No. 1.	473	Robinson-3	905	21	428	1,072			
	11	Samuels & McArthur.	S. Lamb, No. 4.	471	do.	936	10	452	1,048	952		Dry
	1	Ohio.	S. Shipman, No. 1.	490		1,070		580	920			No record
11—N. E.	1	Ohio.	D. Shipman, No. 1.	436	Robinson-1	856	22	420	1,080	828		10 Gas, 932 feet. Salt water
	2	Ohio.	D. Shipman, No. 3.	436	Robinson-3	937		496	1,004	934		930 feet.
N. W.	3	Ohio.	D. Shipman, No. 2.	435	do.	890	12	455	1,045	893		Gas, 892 feet.
	4	Ohio.	Conover, No. 2.	435	Stray	966		561	939			Dry Salt water, 996 feet.
	5	Ohio.	Conover, No. 3.	434	do.	1,010	10	576	924			Dry Salt water, 1,010 feet.
	6	Ohio.	Conover, No. 1.	439	do.	1,026		587	913			Dry
	1	Hubbard.	Baker, No. 1.	448								No record
12—N. W.	1	Ohio.	Jones, No. 1.	451	Robinson-2	879		428	1,079			Well abandoned
	2	Ohio.	Jones, No. 3.	430	do.	865		426	1,075	859		30 Gas, 855 feet.

29 North Fork	Newlin, No. 4	494	Robinson-1	878	44	384	1,116	901	937
30 North Fork	Newlin, No. 2	495	do	865	13	370	1,130	887	
31 North Fork	Newlin, No. 9	483	Robinson-2	897	13	404	1,096		
		483	Robinson-3	927	25	434	1,066		
32 North Fork	Newlin, No. 7	493	Robinson-2	872	40	379	1,121	887	941
		491	Robinson-3	917		424	1,076		
33 North Fork	Newlin, No. 3	491	Robinson-2	880	35	389	1,111		
		490	Robinson-3	924		433	1,067		
34 North Fork	Newlin, No. 6	490	Robinson-2	875	25	385	1,115	895	No record.
35 Kelly	Town Lot, No. 1	491	Robinson-3	914	30	424	1,076	921	do
36 Kelly	Town Lot, No. 2	490	Robinson-3						
37 Homestead	Martin, No. 1	492	Robinson-1	858	11	366	1,134		Quit in sand
		492	Robinson-2	904	7	412	1,068	911	
38 Homestead	Martin, No. 4	492	Robinson-1	852	15	360	1,140		Quit in sand
		492	Robinson-2	874	39	382	1,118	913	
		495	Robinson-3	859	8	384	1,136		
39 Homestead	Martin, No. 3	495	Robinson-2	879	14	384	1,116		
		493	Robinson-3	899	11	404	1,066	913	
		493	Robinson-2	862	12	360	1,131		
40 Homestead	Martin, No. 2	493	Robinson-3	884	17	391	1,109		
		485	J. Dennis, No. 12	909	20	410	1,084	931	
1 Work	J. Dennis, No. 15	485	Robinson-1	825	119	340	1,160		3,000
2 Work	J. Dennis, No. 15	480	do	830	117	350	1,150		Quit in sand
		479	do	835	115	356	1,144		600
3 Work	J. Dennis, No. 7	479	Robinson-2	876	38	397	1,103		
		485	Robinson-1	846	24	361	1,139		
4 Work	J. Dennis, No. 11	485	Robinson-2	896	40	411	1,069		Quit in sand
5 Work	J. Dennis, No. 13	486	Robinson-1	844	100	358	1,142	945	
		486	Robinson-2	843	14	364	1,146	250	
6 Work	J. Dennis, No. 10	486	Robinson-1	863	40	384	1,096		Quit in sand
		490	Robinson-2	855	10	363	1,135	933	
7 Work	J. Dennis, No. 5	490	Robinson-3	865	17	383	1,108		
		486	Robinson-2	862	16	412	1,068	260	
		486	Robinson-1	857	8	371	1,129	500	
		482	Robinson-3	884	57	368	1,102		
8 Work	J. Dennis, No. 6	486	Robinson-2	857	18	375	1,125		
9 Work	J. Dennis, No. 8	482	Robinson-1	857	18	375	1,125	600	
10 Ohio	J. Dennis, No. 9	482	Robinson-3	916	23	384	1,066		Gas, 925 feet
11 Ohio	J. Dennis, No. 10	485	Robinson-2	904	23	440	1,061	925	Gas, 905 feet
12 Ohio	J. Dennis, No. 7	480	Robinson-3	904	23	419	1,081	910	Gas, 903 feet
13 Ohio	J. Dennis, No. 16	479	Robinson-2	903		423	1,077	903	No record
14 Ohio	J. Dennis, No. 6	480	do						Gas, 925 feet
15 Ohio	J. Dennis, No. 8	480	Robinson-3	920		440	1,060	925	Gas, 918 feet
16 Ohio	J. Dennis, No. 8	480	Robinson-2	918		417	1,083	906	Gas, 905 feet
17 Ohio	J. Dennis, No. 13	487	Robinson-1	904	22	417	1,076		
18 Ohio	J. Dennis, No. 12	486	Robinson-3	910		424	1,076	950	
19 Pure	J. Dennis, No. 11	487	Stray	938	19	451	1,049		75 Gas, 940 feet
	Price, No. 8	486	Robinson-1	876	5	380	1,110		
		485	Robinson-2	890	36	404	1,066	926	
20 Pure	Price, No. 7	485	Robinson-3	880	40	405	1,066	945	75
21 Pure	Price, No. 6	482	do	887	18	405	1,065		
			Robinson-3	918	40	436	1,064		200

**N. W.**

## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
21— S. E.	26	Ohio.....	McColpin, No. 1.....	450	Robinson-1.....	854	.....	404 1,096	856	.....	800 Gas, 854 feet. Salt water, 861 feet.....	
	27	Ohio.....	McColpin, No. 2.....	450	.do.....	846	.....	395 1,105	870	.....	150 Gas, 850 feet. Salt water, 870 feet.....	
	28	Ohio.....	McColpin, No. 3.....	451	.do.....	843	.....	392 1,108	850	.....	1,000 Gas, 845 feet.....	
	29	Ohio.....	McColpin, No. 6.....	458	.do.....	855	.....	397 1,103	865	.....	800 Gas, 860 feet. Salt water, 875 feet.....	
	30	Featzer, Copeland et al.	McColpin, No. 5.....	457	.do.....	850	.....	393 1,107	855	.....	200 Gas, 850 feet.....	
	31	Featzer, Copeland et al.	McColpin, No. 4.....	451	Robinson-2.....	863	.....	412 1,083	865	.....	1,100 Gas, 865 feet. Salt water, 870 feet.....	
22— N. E.	32	Brown-Hogue.....	Wasson, No. 2.....	452	Robinson-1.....	842	20	390 1,110	862	904	.....	
	33	Brown-Hogue.....	Wasson, No. 3.....	458	.do.....	860	60	402 1,098	.....	915	.....	
	34	Brown-Hogue.....	Wasson, No. 4.....	469	Robinson-2.....	892	31	423 1,077	.....	.....	.....	
	35	Brown-Hogue.....	Wasson, No. 6.....	472	.do.....	26	440 1,060	.....	.....	.....	.....	
	36	Brown-Hogue.....	Wasson, No. 5.....	465	.do.....	855	41	420 1,060	.....	.....	.....	
	1	Red Bank.....	C. Martin, No. 10.....	464	Robinson-1.....	858	.....	374 1,126	.....	.....	Gas Gas, 858 feet. 1,500,000 cu. ft. gas from this well Gas, 900 feet.....	
	2	Red Bank.....	C. Martin, No. 7.....	464	Robinson-2.....	900	68	416 1,084	.....	.....	.....	
	3	Red Bank.....	C. Martin, No. 6.....	480	Robinson-1.....	859	.....	371 1,128	.....	.....	.....	
	4	Red Bank.....	C. Martin, No. 3.....	470	Robinson-2.....	875	.....	391 1,108	.....	.....	.....	
	5	Red Bank.....	C. Martin, No. 5.....	475	Robinson-3.....	943	.....	459 1,041	943	.....	.....	
	6	Red Bank.....	C. Martin, No. 1.....	486	Robinson-1.....	840	20	386 1,140	890	.....	35	
					Robinson-2.....	875	10	445 1,065	925	.....	50	
					Robinson-3.....	925	25	373 1,127	873	.....	.....	
					Robinson-1.....	843	27	403 1,097	852	.....	.....	
					Robinson-2.....	859	.....	384 1,116	852	.....	.....	
					Casy.....	400	.....	+96 1,596	.....	.....	.....	
					Robinson-1.....	860	24	374 1,126	902	.....	.....	
					Robinson-2.....	890	.....	404 1,096	920	.....	.....	





## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur- face ele- va- tion— feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
21— S. E.	26	Ohio.....	McColpin, No. 1.....	450	Robinson-1.....	854	.....	404	1,096	856	.....	800	Gas, 854 feet. Salt water, 861 feet.
	27	Ohio.....	McColpin, No. 2.....	450	do.....	845	.....	395	1,105	870	.....	150	Gas, 850 feet, Salt water, 870 feet.
	28	Ohio.....	McColpin, No. 3.....	451	do.....	843	.....	392	1,108	850	.....	1,000	Gas, 845 feet.
	29	Ohio.....	McColpin, No. 6.....	458	do.....	855	.....	397	1,103	865	.....	800	Gas, 860 feet. Salt water, 875 feet.
	30	Featzer, Copeland et, al.	McColpin, No. 5.....	457	do.....	850	.....	393	1,107	855	.....	200	Gas, 850 feet.
	31	Featzer, Copeland et, al.	McColpin, No. 4.....	451	Robinson-2.....	863	.....	412	1,088	865	.....	1,100	Gas, 865 feet. Salt water, 870 feet.
22— N. E.	32	Brown-Hogue.....	Wasson, No. 2.....	452	Robinson-1.....	842	20	390	1,110	862	904	.....	.....
	33	Brown-Hogue.....	Wasson, No. 3.....	458	do.....	860	50	402	1,098	.....	915	.....	.....
	34	Brown-Hogue.....	Wasson, No. 4.....	469	Robinson-2.....	892	31	423	1,077	.....	.....	.....	.....
	35	Brown-Hogue.....	Wasson, No. 6.....	472	do.....	912	28	440	1,060	.....	.....	.....	.....
	36	Brown-Hogue.....	Wasson, No. 5.....	465	do.....	885	41	420	1,080	.....	.....	.....	.....
	1	Red Bank.....	C. Martin, No. 10.....	484	Robinson-1.....	858	.....	374	1,126	.....	.....	Gas	Gas, 858 feet. 1,500,000 cu. ft. gas from this well.
	2	Red Bank.....	C. Martin, No. 7.....	484	Robinson-2.....	900	68	416	1,084	.....	.....	.....	Gas, 900 feet.
					Robinson-1.....	855	.....	371	1,129	.....	.....	.....	
					Robinson-2.....	875	.....	391	1,109	.....	.....	.....	
					Robinson-3.....	943	.....	459	1,041	943	.....	.....	
	3	Red Bank.....	C. Martin, No. 6.....	480	Robinson-1.....	840	.....	360	1,140	.....	.....	.....	.....
					Robinson-2.....	875	20	390	1,105	890	.....	.....	
					Robinson-3.....	925	10	445	1,055	925	35	.....	
4	Red Bank.....	C. Martin, No. 3.....	470	Robinson-1.....	843	25	373	1,127	.....	.....	50	.....	
5	Red Bank.....	C. Martin, No. 5.....	475	Robinson-2.....	873	27	403	1,097	873	.....	.....	.....	
6	Red Bank.....	C. Martin, No. 1.....	486	Casey.....	400	.....	+86	1,568	.....	.....	.....	.....	
				Robinson-1.....	800	24	374	1,126	.....	.....	902	920	
					Robinson-2.....	890	.....	404	1,096	.....	.....	.....	.....

7	Crescent.....	Wakefield Hrs., No. 1.....	486	Robinson-1.....	873	10	387	1,113	.....	937	.....	.....
8	Crescent.....	H. Martin, No. 1.....	485	Robinson-2.....	868	37	407	1,083	.....	872	.....	.....
9	Crescent.....	H. Martin, No. 8.....	483	Robinson-1.....	872	42	407	1,113	.....	938	.....	.....
10	Crescent.....	H. Martin, No. 7.....	486	Robinson-2.....	878	12	395	1,105	.....	892	.....	.....
11	Crescent.....	H. Martin, No. 6.....	484	Robinson-1.....	866	46	409	1,091	.....	943	.....	.....
12	Crescent.....	H. Martin, No. 9.....	477	Robinson-2.....	900	28	414	1,120	.....	939	.....	.....
13	Crescent.....	H. Martin, No. 2.....	482	Robinson-1.....	870	6	386	1,114	.....	948	.....	.....
14	Crescent.....	H. Martin, No. 3.....	477	do.....	865	53	411	1,089	.....	941	.....	.....
15	Crescent.....	H. Martin, No. 4.....	482	Robinson-1.....	876	4	394	1,106	.....	925	.....	Gas, 860 feet.
16	Crescent.....	H. Martin, No. 5.....	483	Robinson-2.....	867	8	390	1,110	.....	997	.....	.....
17	Red Bank.....	A. Smith, No. 3.....	468	Robinson-1.....	868	15	386	1,114	.....	950	.....	Gas, 861 feet.
18	Red Bank.....	A. Smith, No. 1.....	482	Robinson-2.....	897	69	379	1,121	.....	936	.....	50
19	Red Bank.....	A. Smith, No. 2.....	470	Robinson-1.....	855	18	373	1,127	.....	100	.....	Gas sand.
20	Red Bank.....	A. Smith, No. 4.....	475	Robinson-2.....	891	29	409	1,091	.....	892	.....	25
21	Morrison.....	do.....	479	do.....	855	36	380	1,120	.....	.....	.....	Gas.
22	Morrison.....	A. Smith, No. 5.....	465	Robinson-1.....	862	23	403	1,097	.....	125	.....	125
23	Morrison.....	A. Smith, No. 3.....	460	Robinson-2.....	884	28	419	1,081	.....	125	.....	125
24	Morrison.....	A. Smith, No. 2.....	464	do.....	864	27	404	1,096	.....	125	.....	125
25	Morrison.....	A. Smith, No. 1.....	474	Robinson-1.....	836	29	372	1,128	.....	.....	.....	.....
26	Wark.....	Dennis, No. 1.....	469	Robinson-2.....	874	21	410	1,090	.....	125	.....	125
27	Wark.....	Dennis, No. 2.....	477	Robinson-3.....	945	10	481	1,019	.....	125	.....	125
28	Wark.....	Dennis, No. 3.....	483	Robinson-1.....	883	34	409	1,091	.....	300	.....	300
29	W. W. Splane.....	Prior, No. 4.....	475	do.....	850	35	373	1,127	.....	.....	.....	.....
30	W. W. Splane.....	Prior, No. 8.....	469	Robinson-2.....	910	8	433	1,067	.....	.....	.....	.....
31	W. W. Splane.....	Prior, No. 6.....	481	Robinson-3.....	926	12	449	1,051	.....	.....	.....	.....
				Robinson-4.....	965	13	488	1,012	.....	.....	.....	40
				Robinson-1.....	856	15	373	1,127	.....	.....	.....	.....
				Robinson-2.....	901	39	418	1,062	.....	.....	.....	.....
				Robinson-4.....	847	5	487	1,013	.....	1,025	.....	10
				Robinson-1.....	878	10	403	1,097	.....	Show	.....	.....
				Robinson-2.....	899	6	424	1,076	.....	.....	.....	.....
				Robinson-3.....	931	11	456	1,044	.....	.....	.....	.....
				Robinson-4.....	942	6	467	1,033	.....	942	.....	.....
				Robinson-1.....	954	12	479	1,021	.....	955	.....	.....
				Robinson-2.....	827	23	358	1,142	.....	.....	.....	.....
				Robinson-3.....	879	18	410	1,090	.....	.....	.....	.....
				Robinson-1.....	927	14	458	1,042	.....	874	.....	Gas, 837 to 872 feet.
				Robinson-2.....	857	75	356	1,144	.....	925	.....	Salt water, 958 feet.
				Robinson-3.....	923	8	442	1,058	.....	.....	.....	.....
				Robinson-4.....	942	461	461	1,039	.....	.....	.....	.....

## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face ele-va-tion—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
36—N. E.	20	Ohio.....	Adams, No. 6.....	452	Robinson-1.....	803	27	351	1,149	805	15	Gas, 805 feet.
	21	Ohio.....	Adams, No. 8.....	453	do.....	802	26	349	1,151	805	45	Gas, 805 feet.
	22	Ohio.....	Adams, No. 2.....	467	do.....	808	37	341	1,159	815	200	Gas, 815 feet.
	23	Ohio.....	Adams, No. 7.....	462	do.....	790	32	328	1,172	808	40	Gas, 796 feet.
	1	American Oil & Development Co.....	Richart, No. 5.....	464	do.....	814	31	350	1,150	833		
N. W.	2	American Oil & Development Co.....	Richart, No. 4.....	475	do.....	824	41	349	1,151		100	
	3	American Oil & Development Co.....	Richart, No. 3.....	467	Robinson-2.....	863	32	398	1,104			
	4	American Oil & Development Co.....	Richart, No. 6.....	461	Shallow.....	925	17	458	1,042	943	50	
	5	American Oil & Development Co.....	Richart, No. 8.....	464	Robinson-1.....	640	14	179	1,321	926		
	6	American Oil & Development Co.....	Richart, No. 26.....	455	Robinson-2.....	792	24	331	1,169	811		
	7	American Oil & Development Co.....	Richart, No. 15.....	468	Robinson-3.....	850	30	389	1,111	876		
	8	Red Bank.....	Mitchell, No. 1.....	468	Stray.....	767	58	303	1,197		100	
	9	Red Bank.....	Mitchell, No. 2.....	465	Robinson-1.....	787	32	332	1,168	792		
	10	Ohio.....	Mitchell, No. 3.....	480	Robinson-2.....	839	5	374	1,126			
	11	Ohio.....	Mitchell, No. 2.....	456	Robinson-3.....	850	42	365	1,105	897		
	12	Ohio.....	Mitchell, No. 1.....	475	Robinson-1.....	807	26	339	1,161		100	
	13	Ohio.....	Adams, No. 5.....	475	do.....	804	24	356	1,164	830	100	
	14	Ohio.....	Adams, No. 1.....	464	do.....	790	27	325	1,175		20	No record.
	15	Wabash.....	Doucunnen, No. 1.....	456	do.....	791	19	335	1,165		25	
	16	Ohio.....	Doucunnen, No. 6.....	464	Robinson-1.....	806	19	331	1,169	830	60	Gas, 827 feet.
					Robinson-3.....	826	10	350	1,150		80	Gas, 806 feet.
					Robinson-2.....	804	10	350	1,150			
					Robinson-3.....	775	16	319	1,181	791		
					Robinson-3.....	912	32	456	1,044			
					Robinson-3.....	854	12	390	1,110			
					Robinson-3.....	906	19	442	1,058	910	5	Gas, 860 feet.

17 Ohio.....	Docummen, No. 5.....	452	do.....	Robinson-1.....	886	10	434	1,066	823	40
18 Ohio.....	Docummen, No. 3.....	479	do.....	do.....	809		323	1,170		
19 Morrison.....	Docummen, No. 7.....	468	do.....	do.....	791	11	323	1,177	30	
20 Morrison.....	Docummen, No. 2.....	462	do.....	do.....	809	34	341	1,169		
1 Ohio.....	Sparks, No. 1.....	466	do.....	do.....	788	11	326	1,174		
2 Red Bank.....	Maxwell, No. 3.....	451	do.....	do.....	868	12	401	1,094		
3 Ohio.....	Maxwell, No. 6.....	447	do.....	do.....	867	5	401	1,089		
4 Ohio.....	Maxwell, No. 7.....	448	do.....	do.....	903		437	1,063		
5 Hazelwood.....	Pope, No. 3.....	442	do.....	do.....	830	10	379	1,121		
6 Hazelwood.....	Pope, No. 16.....	446	do.....	do.....	912	15	461	1,039		
7 Hazelwood.....	Pope, No. 2.....	444	do.....	do.....	773	20	326	1,174		
8 Hazelwood.....	Pope, No. 18.....	441	do.....	do.....	772	3	324	1,176		
9 Hazelwood.....	Pope, No. 1.....	441	do.....	do.....	891	11	443	1,067		
10 Hazelwood.....	Pope, No. 6.....	443	do.....	do.....	776	8	333	1,167		
1 Leeper Bros.....	Sparks, No. 4.....	460	do.....	do.....	888	12	446	1,064		
2 Leeper Bros.....	Sparks, No. 1.....	454	do.....	do.....	770	32	324	1,176		
3 Leeper Bros.....	Sparks, No. 13.....	459	do.....	do.....	773	27	329	1,171		
4 Leeper Bros.....	Sparks, No. 17.....	467	do.....	do.....	850	27	406	1,094		
5 Leeper Bros.....	Sparks, No. 15.....	467	do.....	do.....	385	33	+56	1,656		
6 Leeper Bros.....	Sparks, No. 14.....	465	do.....	do.....	787	23	326	1,174		
7 Leeper Bros.....	Sparks, No. 12.....	466	do.....	do.....	782	38	341	1,169		
8 Leeper Bros.....	Sparks, No. 16.....	463	do.....	do.....	857	13	416	1,084		
9 Leeper Bros.....	Sparks, No. 9.....	463	do.....	do.....	775	28	332	1,168		
10 Leeper Bros.....	Sparks, No. 10.....	461	do.....	do.....	946	15	403	1,097		
11 Leeper Bros.....	Sparks, No. 18.....	470	do.....	do.....	792	38	332	1,168		
12 Leeper Bros.....	Sparks, No. 8.....	453	do.....	do.....	380	45	+64	1,564		
13 Leeper Bros.....	Sparks, No. 6.....	450	do.....	do.....	799	32	340	1,150		
14 Leeper Bros.....	Sparks, No. 5.....	448	do.....	do.....	815	23	348	1,153		
15 Leeper Bros.....	Sparks, No. 19.....	462	do.....	do.....	810	20	343	1,157		
16 Ohio.....	Maxwell, No. 5.....	445	do.....	do.....	851	3	384	1,116		
17 Wabash.....	Maxwell, No. 1.....	452	do.....	do.....	808	22	343	1,157		
18 American Oil & Development Co.....	Richart, No. 27.....	452	do.....	do.....	824	26	348	1,142		
19 American Oil & Development Co.....	Richart, No. 14.....	452	do.....	do.....	823	15	358	1,142		
20 American Oil & Development Co.....	Richart, No. 16.....	450	do.....	do.....	851	14	386	1,114		
			do.....	do.....	826	20	363	1,137		
			do.....	do.....	804	32	343	1,157		
			do.....	do.....	817	22	347	1,153		
			do.....	do.....	786	23	336	1,164		
			do.....	do.....	772	22	324	1,176		
			do.....	do.....	805	20	343	1,157		
			do.....	do.....	772	27	327	1,173		
			do.....	do.....	790	6	338	1,162		
			do.....	do.....	880	25	438	1,062		
			do.....	do.....	788	30	336	1,164		
			do.....	do.....	787	34	335	1,165		
			do.....	do.....	795	20	345	1,155		
			do.....	do.....	917	20	467	1,033		

## Crawford County—Martin Township—Concluded.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.	Name.				
36—S. E...	21	American Oil & Development Co.	Richart, No. 17	445	808	8	363	1,137	Robinson-1	808		35	
	21				818	11	373	1,127	Robinson-2				
					931		496	1,014	Robinson-3				Salt water, 931 feet.
	22	Riddle	Mann, No. 5	450	803	18	353	1,147	Robinson-1	807		50	
	23	Riddle	Mann, No. 6	455	923	12	473	1,027	Robinson-3				
					800	32	345	1,155	Robinson-1			40	Salt water, 930 feet.
	24	Riddle	Mann, No. 7	455	819	14	364	1,136	do				
					911	26	456	1,044	Robinson-3				
	25	Riddle	Mann, No. 8	450	816	15	365	1,135	Robinson-1				
					919		469	1,031	Robinson-3	938			
	26	Riddle	Mann, No. 4	445	802	19	357	1,143	Robinson-1			40	Gas, 915 feet.
					912	26	467	1,033	Robinson-3	915		Show	
27	Riddle		Mann, No. 3	450	795	35	345	1,155	Robinson-1	901		40	
					893	41	443	1,057	Robinson-3				
28	Riddle		Mann, No. 2	450	815	5	365	1,135	Robinson-1			80	
					901	32	451	1,040	Robinson-3				
29	Riddle		Mann, No. 1	451	908	47	457	1,043	Robinson-3			40	

7 Ohio.....	A. Smith, No. 8.....	481	Stray	921	10	440	1,000	962	35	Gas, 956 feet.
8 Ohio.....	A. Smith, No. 5.....	483	Robinson-3	960	20	469	1,031	962	40	No record
9 Watford.....	Doolittle, No. 12.....	487	Robinson-1	849	24	366	1,134			do.
10 Watford.....	Doolittle, No. 14.....	486								do.
11 Watford.....	Doolittle, No. 9.....	484								do.
12 Watford.....	Doolittle, No. 11.....	485								do.
13 Watford.....	Doolittle, No. 13.....	486								do.
14 Watford.....	Doolittle, No. 15.....	486								do.
15 Ohio.....	A. Smith, No. 7.....	489	Robinson-1	841	6	352	1,148			
			Robinson-3	942	20	453	1,047	952	35	Gas, 945 feet.
16 Ohio.....	A. Smith, No. 6.....	490	Robinson-1	855	40	365	1,135	967	40	Gas, 858 feet.
			Robinson-3	954	5	464	1,036			
17 Ohio.....	A. Smith, No. 1.....	491	Robinson-1	844	4	353	1,147			
			Robinson-3	932	43	441	1,059		25	
18 Ohio.....	A. Smith, No. 4.....	487	Robinson-1	857	12	370	1,130		50	
			Robinson-3	939	15	452	1,048			
19 Ohio.....	S. Tohill (1 acre), No. 1.....	484	Robinson-1	845	3	361	1,139		20	
			Robinson-3	951	14	467	1,033			
20 Spiane.....	Brubaker, No. 7.....	485	Robinson-1	838	21	351	1,149			
			Robinson-3	975	22	390	1,100			
21 Bruner & Spiane.....	Brubaker, No. 5.....	487	Robinson-2	838	34	453	1,047	902		Quit in sand.
22 Bruner & Spiane.....	Brubaker, No. 4.....	487	Robinson-3	956	12	413	1,087	960	982	
			Robinson-1	853	29	396	1,104	883	922	
23 Bruner & Spiane.....	Brubaker, No. 6.....	479	Robinson-2	854	11	375	1,125			Stray lens.
			Robinson-3	979	9	400	1,100			Broken sand.
24 Bruner & Spiane.....	Brubaker, No. 1.....	479	Robinson-1	894	16	415	1,065			
			Robinson-3	982	24	383	1,117	896		
25 Bruner & Spiane.....	Brubaker, No. 2.....	484	Robinson-2	958	10	417	1,093	958		Gas, 879 feet.
			Robinson-3	979	34	395	1,105	879		
26 Bruner & Spiane.....	Brubaker, No. 3.....	481	Robinson-1	845	34	394	1,136			
			Stray	936	8	455	1,045	936		Black slate, 944 to 954 feet.
			Robinson-3	954	24	473	1,027	954	990	
1 Peoples Oil & Gas Co.....	Hopkins (upper), No. 2.....	521	Robinson-1	909	97	398	1,112			
			Robinson-4	1,013	41	492	1,008		Dry	Salt water, 1,013 feet. Well abandoned.
2 Peoples Oil & Gas Co.....	Hopkins (upper), No. 1.....	515	Robinson-1	918	22	403	1,097		Dry	
3 Morrison.....	Walters, No. 1.....	522	Robinson-2	912		390	1,110			
			Robinson-3	937		415	1,065			
4 Morrison.....	Martin, No. 7.....	512	Robinson-1	964	11	442	1,058		45	Gas sand.
			Robinson-3	986	5	374	1,128			
5 Morrison.....	Martin, No. 5.....	504	Robinson-2	922	2	410	1,090	922	Show	
			Robinson-3	976	34	464	1,036	980		Salt water, 976 feet.
6 Morrison.....	Martin, No. 6.....	505	Robinson-1	907	19	403	1,097	912	50	
			Robinson-3	977	9	473	1,027			
			Stray	982	6	457	1,043			
7 Morrison.....	Martin, No. 1.....	509	Robinson-3	975	16	470	1,030	975		Well abandoned.
			Stray	1,017	7	512	998			
			Robinson-2	936	29	437	1,073	1,028	50	

## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
22—S. E...	7	Crecent.....	Hooker, No. 5.....	512	Robinson-1.....	555	.....	343	1,157	.....	.....	No record.....
	8	Ohio.....	Hooker, No. 2.....	512	Robinson-3.....	950	.....	10	438	1,052	25	.....
	9	Ohio.....	Hooker, No. 3.....	524	Robinson-1.....	916	6	392	1,106	980	Light	.....
	10	Ohio.....	Hooker, No. 4.....	524	do.....	918	6	394	1,106	981	.....	.....
	11	Ohio.....	Hooker, No. 1.....	524	Robinson-3.....	919	30	395	1,105	983	.....	.....
24—N. E... N. W..	1	Ohio.....	O. Mann, No. 1.....	529	Robinson-1.....	918	30	399	1,111	.....	.....	Salt water, 990 feet.....
	1	Ohio.....	Morrison, No. 1.....	522	Robinson-3.....	930	15	413	1,087	.....	.....	.....
	2	Ohio.....	Morrison, No. 2.....	525	do.....	933	10	431	1,090	.....	.....	Slate, 950 to 953 feet.....
	3	Morrison.....	Weirich, No. 1.....	517	Robinson-1.....	938	5	433	1,087	.....	25	.....
	4	Morrison.....	Weirich, No. 4.....	527	Robinson-1.....	911	.....	394	1,106	.....	50	Gas, 920 feet.....
S. W..	5	Morrison.....	Weirich, No. 3.....	523	do.....	920	49	393	1,107	953	50	Gas, 923 feet.....
	6	Morrison.....	Weirich, No. 2.....	522	Robinson-2.....	922	21	427	1,073	.....	50	.....
	1	Morrison.....	Butler, No. 2.....	522	Robinson-1.....	912	14	390	1,110	.....	.....	.....
	2	Morrison.....	Butler, No. 1.....	523	Robinson-2.....	936	.....	414	1,086	.....	50	.....
	3	Morrison.....	Butler, No. 3.....	506	Robinson-3.....	970	448	493	1,052	.....	.....	.....
	4	Morrison.....	Butler, No. 4.....	518	Robinson-2.....	923	402	498	1,096	.....	3	.....
	5	Red Bank.....	Dyar, No. 1.....	514	Robinson-1.....	921	8	459	1,041	953	.....	.....
	6	Red Bank.....	Dyar, No. 2.....	506	Robinson-2.....	940	29	417	1,083	940	200	Gas, 923 feet.....
					do.....	923	16	455	1,045	963	Show	.....
					Robinson-3.....	945	.....	399	1,111	.....	.....	.....
					Robinson-1.....	970	6	441	1,039	.....	11	.....
					Robinson-2.....	923	.....	399	1,111	925	25	.....
					Robinson-3.....	944	45	417	1,083	928	300	.....

S. E.	7 Red Bank	Dyar, No. 4	511	Robinson-1	885	18	374	1,126	40	374	1,126	40
	8 Red Bank	Dyar, No. 3	502	Robinson-3	948	30	370	1,130	25	370	1,130	25
	9 Ohio	Smith, No. 4	500	Robinson-3	873	65	405	1,042	5	405	1,042	5
	10 Ohio	Smith, No. 2	518	Robinson-3	905	11	451	1,048	10	451	1,048	10
	11 Ohio	Smith, No. 3	520	do	969	11	445	1,055	100	445	1,055	100
	12 Ohio	Smith, No. 1	520	Robinson-1	923	27	403	1,097	Light Show	403	1,097	Light Show
	1 Red Bank	Johnson, No. 3	518	Robinson-2	932	19	432	1,068	Salt water, 986 feet. Well abandoned	432	1,068	Salt water, 986 feet. Well abandoned
	2 Red Bank	Johnson, No. 2	498	Stray	881	10	363	1,137	Gas, 923 feet.	363	1,137	Gas, 923 feet.
	3 Red Bank	Johnson, No. 1	488	Robinson-3	981	11	463	1,087	Dry	463	1,087	Dry
	1 Crescent	Johnson, No. 1	497	Robinson-1	923	32	425	1,075	Salt water, 955 feet.	425	1,075	Salt water, 955 feet.
	2 Crescent	Johnson, No. 2	488	Robinson-2	938	12	451	1,048	Quit in sand	451	1,048	Quit in sand
N. E.	3 Haywood	Richard, No. 1	493	Robinson-3	890	35	393	1,107	965	393	1,107	965
	4 Splane	Coulter, No. 1	492	Robinson-1	942	10	445	1,055	Salt water, 976 feet.	445	1,055	Salt water, 976 feet.
	1 Mahutska	Weirich, Heirs, No. 4	491	Robinson-3	960	5	463	1,037	Coal, 725 feet.	463	1,037	Coal, 725 feet.
	2 Mahutska	Weirich, Heirs, No. 2	496	Robinson-1	885	25	387	1,113	Salt water, 978 feet. Well abandoned	387	1,113	Salt water, 978 feet. Well abandoned
	3 Mahutska	Weirich, Heirs, No. 3	497	Robinson-2	935	12	437	1,083	Salt water, 922 feet. Well abandoned	437	1,083	Salt water, 922 feet. Well abandoned
	4 Mahutska	Weirich, Heirs, No. 1	488	Robinson-3	938	18	460	1,040	Salt water, 970 feet. Well abandoned	460	1,040	Salt water, 970 feet. Well abandoned
	5 Mahutska	Weirich, Heirs, No. 2	493	Robinson-1	890	20	385	1,105	Salt water, 978 feet. Well abandoned	385	1,105	Salt water, 978 feet. Well abandoned
	6 Mahutska	Weirich, Heirs, No. 8	497	Robinson-2	964	16	469	1,031	Salt water, 922 feet. Well abandoned	469	1,031	Salt water, 922 feet. Well abandoned
	7 Mahutska	Weirich, Heirs, No. 5	504	Robinson-1	887	19	375	1,125	Salt water, 970 feet. Well abandoned	375	1,125	Salt water, 970 feet. Well abandoned
	8 Mahutska	Weirich, Heirs, No. 6	496	Robinson-3	937	24	445	1,055	Salt water, 978 feet. Well abandoned	445	1,055	Salt water, 978 feet. Well abandoned
	9 Mahutska	Weirich, Heirs, No. 3	508	do	959	7	468	1,032	Salt water, 922 feet. Well abandoned	468	1,032	Salt water, 922 feet. Well abandoned
				Robinson-1	875	62	379	1,121	Salt water, 978 feet. Well abandoned	379	1,121	Salt water, 978 feet. Well abandoned
N. W.	1 Mahutska	Weirich, Heirs, No. 1	488	Robinson-3	962	13	466	1,034	Salt water, 978 feet. Well abandoned	466	1,034	Salt water, 978 feet. Well abandoned
	2 Mahutska	Weirich, Heirs, No. 2	496	Robinson-1	849	31	352	1,146	Salt water, 922 feet. Well abandoned	352	1,146	Salt water, 922 feet. Well abandoned
	3 Mahutska	Weirich, Heirs, No. 3	497	Stray	886	14	389	1,111	Salt water, 922 feet. Well abandoned	389	1,111	Salt water, 922 feet. Well abandoned
	4 Mahutska	Weirich, Heirs, No. 1	488	Robinson-2	914	22	417	1,083	Salt water, 922 feet. Well abandoned	417	1,083	Salt water, 922 feet. Well abandoned
	5 Mahutska	Weirich, Heirs, No. 2	493	Robinson-1	835	44	347	1,153	Salt water, 922 feet. Well abandoned	347	1,153	Salt water, 922 feet. Well abandoned
	6 Mahutska	Weirich, Heirs, No. 8	497	Robinson-2	905	8	417	1,083	Salt water, 922 feet. Well abandoned	417	1,083	Salt water, 922 feet. Well abandoned
	7 Mahutska	Weirich, Heirs, No. 5	504	Stray	922	11	434	1,086	Salt water, 922 feet. Well abandoned	434	1,086	Salt water, 922 feet. Well abandoned
	8 Mahutska	Weirich, Heirs, No. 6	496	Robinson-3	950	20	462	1,038	Salt water, 922 feet. Well abandoned	462	1,038	Salt water, 922 feet. Well abandoned
	9 Mahutska	Weirich, Heirs, No. 3	508	Robinson-1	838	28	345	1,155	Salt water, 922 feet. Well abandoned	345	1,155	Salt water, 922 feet. Well abandoned
				Robinson-2	966	9	463	1,037	Salt water, 922 feet. Well abandoned	463	1,037	Salt water, 922 feet. Well abandoned
				Robinson-3	853	17	356	1,144	Salt water, 922 feet. Well abandoned	356	1,144	Salt water, 922 feet. Well abandoned
				Robinson-1	927	6	430	1,070	Salt water, 922 feet. Well abandoned	430	1,070	Salt water, 922 feet. Well abandoned
				Robinson-2	960	6	463	1,037	Salt water, 922 feet. Well abandoned	463	1,037	Salt water, 922 feet. Well abandoned



## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
25— N W.	10	Mahutska.	H. Weirich, No. 4.	508	866	15	358	1,142			150	
	11	Mahutska.	H. Weirich, No. 10.	503	923	46	415	1,083				
	12	Mahutska.	H. Weirich, No. 9.	484	835	25	332	1,168				
	13	Mahutska.	H. Weirich, No. 1.	498	920	28	417	1,083	832			
	14	Mahutska.	H. Weirich, No. 7.	479	830	27	336	1,164				
	1	Red Bank.	Smith, No. 3.	493	903	35	419	1,081				
	2	Red Bank.	Smith, No. 2 "B".	473	842	13	344	1,156			150	
	3	Red Bank.	Smith, No. 1 "B".	473	914	32	416	1,084				
	4	Red Bank.	Maxwell, No. 3.	486	834	14	345	1,155				
	5	Red Bank.	Maxwell, No. 1.	490	838	60	409	1,091			150	No record.
	6	Red Bank.	Maxwell, No. 2.	490	815	11	342	1,158				
	7	Red Bank.	Maxwell, No. 4.	488	902	25	429	1,071			50	
	8	Ohio.	Smith, No. 1.	469	735	22	322	1,178				
S W.	9	Ohio.	Smith, No. 2.	480	842	32	369	1,131				
	10	Ohio.	Maxwell, No. 1.	483	830	10	344	1,156	912		10	
	11	Ohio.	Maxwell, No. 2.	484	912	15	426	1,074				
	12	Ohio.	Maxwell, No. 3.	483	785	24	265	1,265			25	
					832	12	362	1,138	820		25	
					815	15	325	1,175				
					908	10	416	1,084				
					830	8	342	1,158				
					918	18	430	1,070			50	
					808	30	339	1,161				
					885	22	416	1,084				
					902	23	422	1,078			100	
					906	7	426	1,077	832			
					830	26	336	1,164				
					838	9	411	1,099				
					859	4	376	1,124				
					910	18	427	1,073				



## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
28— N. E.	12	Red Bank.	H mblin, No. 1 "R. B."	508	Robinson-1	853	17	345	1,155				
	13	Red Bank.	Hamblin, No. 2 "R. B."	508	Robinson-2	891	15	333	1,117			100	
	14	Red Bank.	Hamblin, No. 1 "B."	498	Robinson-1	847	24	341	1,159				
	15	Ohio.	Cullison-Wagner, No. 3	498	do	846	9	349	1,151				
	16	Ohio.	Cullison-Wagner, No. 1.	498	Robinson-2	884	16	335	1,115				No record.
	17	Ohio.	Cullison-Wagner, No. 2.	494	Shallow	897	24	338	1,102	902			Gas, 820 feet.
	18	Red Bank.	Weirich, No. 1.	503	Robinson-2	480	26	+14	1,514			60	
	19	Red Bank.	Weirich, No. 2.	506	Robinson-2	892	24	338	1,102	895			
	20	Wabash.	Weirich, No. 1.	498	Robinson-2	845	11	342	1,158				
	21	Ohio.	Weirich, No. 5.	498	Robinson-3	898	20	333	1,117	886			
	22	Ohio.	Weirich, No. 1.	497	Robinson-2	846	10	446	1,054				Gas 946 feet.
	23	Ohio.	Weirich, No. 3.	498	Robinson-2	890	19	334	1,116			100	
	24	Ohio.	Weirich, No. 6.	498	Robinson-2	843	50	345	1,155				
	25	Ohio.	Weirich, No. 2.	500	Robinson-3	911	27	413	1,087				Gas, 845 feet.
	26	Ohio.	Weirich, No. 4.	498	Robinson-2	845	31	331	1,119			150	
	27	Ohio.	Weirich, No. 5.	497	Robinson-3	879	23	427	1,073	925		200	No record.
	28	Ohio.	Weirich, No. 4.	500	do	905	35	410	1,060			300	Gas, 830 feet.
N. W.	1	Crawford & Milligan.	J. Wright, No. 8.	515	Stray	827	6	318	1,182			110	
	2	Crawford & Milligan.	J. Wright, No. 5.	508	Robinson-1	825	16	324	1,178				
	3	Crawford & Milligan.	J. Wright, No. 13.	510	Robinson-2	892	14	324	1,175	898			
					Robinson-1	840	2	347	1,153				
					Robinson-3	853	12	352	1,108	908			No record.
					Robinson 1	833	7	343	1,157				
					Robinson-2	883	23	372	1,126				

4 Parker & Edwards	W. Buck, No. 17	483	Stray	800	38	317	1,183	819	Show	
5 Parker & Edwards	W. Buck, No. 9	483	Robinson-1	846	4	362	1,138		Dry	
6 Parker & Edwards	W. Buck, No. 12	481	Robinson-2	844	19	411	1,089			
7 Parker & Edwards	W. Buck, No. 1	483	Stray	832	7	349	1,131	914		
8 Liberty	Houton, No. 5	481	Robinson-1	835	34	380	1,120	869		
9 Parker & Edwards	W. Buck, No. 6	484	do.	870	10	389	1,111			
10 Parker & Edwards	W. Buck, No. 3	454	Stray	835	5	404	1,048	936		
11 Parker & Edwards	W. Buck, No. 18	481	Robinson-2	846	50	413	1,085			
12 Parker & Edwards	W. Buck, No. 10	483	Robinson-1	846	38	363	1,137	858		
13 Parker & Edwards	W. Buck, No. 16	479	Robinson-2	846	41	417	1,083			
14 Parker & Edwards	W. Buck, No. 1	484	Robinson-1	846	19	364	1,136	850		
15 Parker & Edwards	W. Buck, No. 3	454	Robinson-2	846	19	419	1,081	910		
16 Parker & Edwards	W. Buck, No. 18	481	Robinson-1	846	38	371	1,129			
17 Parker & Edwards	W. Buck, No. 10	483	Robinson-2	846	24	405	1,066			
18 Parker & Edwards	W. Buck, No. 6	484	Robinson-1	846	25	370	1,124	834		
19 Parker & Edwards	W. Buck, No. 1	483	Robinson-2	846	17	375	1,125			
20 Parker & Edwards	W. Buck, No. 16	479	Stray	830	16	361	1,149	892		
21 Parker & Edwards	W. Buck, No. 3	454	Robinson-1	836	16	377	1,123	860		
22 Parker & Edwards	W. Buck, No. 18	481	do.	836	16	385	1,115			
23 Parker & Edwards	W. Buck, No. 10	483	do.	836	25	382	1,118			
24 Parker & Edwards	W. Buck, No. 6	484	do.	844	18	380	1,120			
25 Parker & Edwards	W. Buck, No. 1	483	do.	844	18	383	1,117			
26 Parker & Edwards	W. Buck, No. 16	479	do.	844	18	383	1,117			
27 Parker & Edwards	W. Buck, No. 3	454	do.	844	18	383	1,117			
28 Parker & Edwards	W. Buck, No. 18	481	Robinson-2	844	13	382	1,118			
29 Parker & Edwards	W. Buck, No. 10	483	Robinson-1	844	16	388	1,102			
30 Parker & Edwards	W. Buck, No. 6	484	Robinson-2	844	15	378	1,122			
31 Parker & Edwards	W. Buck, No. 1	483	Robinson-1	844	15	385	1,115			
32 Parker & Edwards	W. Buck, No. 16	479	do.	844	6	408	1,092			
33 Parker & Edwards	W. Buck, No. 3	454	Robinson-2	844	21	379	1,121			
34 Parker & Edwards	W. Buck, No. 18	481	Robinson-1	844	11	412	1,088	900		
35 Parker & Edwards	W. Buck, No. 10	483	Robinson-2	844	16	384	1,106			
36 Parker & Edwards	W. Buck, No. 6	484	Robinson-1	844	16	384	1,106			
37 Parker & Edwards	W. Buck, No. 1	483	do.	844	19	392	1,106			
38 Parker & Edwards	W. Buck, No. 16	479	Robinson-2	844	15	388	1,102	884		
39 Parker & Edwards	W. Buck, No. 3	454	Robinson-1	844	23	386	1,114	860		
40 Parker & Edwards	W. Buck, No. 18	481	do.	844	20	385	1,115	849		
41 Parker & Edwards	W. Buck, No. 10	483	do.	844	22	382	1,106			
42 Parker & Edwards	W. Buck, No. 6	484	do.	844	12	376	1,124			
43 Parker & Edwards	W. Buck, No. 1	483	do.	844	17	378	1,122			
44 Parker & Edwards	W. Buck, No. 16	479	do.	844	17	375	1,125			
45 Parker & Edwards	W. Buck, No. 3	454	do.	844	14	376	1,124			
46 Parker & Edwards	W. Buck, No. 18	481	do.	844	13	382	1,118			
47 Parker & Edwards	W. Buck, No. 10	483	Robinson-4	844	13	379	1,121			
48 Parker & Edwards	W. Buck, No. 6	484	Robinson-1	844	14	387	1,113	997		
49 Parker & Edwards	W. Buck, No. 1	483	do.	844	13	385	1,115			
50 Parker & Edwards	W. Buck, No. 16	479	Robinson-4	844	132	330	970			
51 Parker & Edwards	W. Buck, No. 3	454	Robinson-1 (?)	844	64	332	1,108	885		
52 Parker & Edwards	W. Buck, No. 18	481	Robinson-4	844	478	492	1,008			
53 Parker & Edwards	W. Buck, No. 10	483	Robinson-4	844	970					
54 Parker & Edwards	W. Buck, No. 6	484	Robinson-4	844						
55 Parker & Edwards	W. Buck, No. 1	483	Robinson-4	844						
56 Parker & Edwards	W. Buck, No. 16	479	Robinson-4	844						
57 Parker & Edwards	W. Buck, No. 3	454	Robinson-4	844						
58 Parker & Edwards	W. Buck, No. 18	481	Robinson-4	844						
59 Parker & Edwards	W. Buck, No. 10	483	Robinson-4	844						
60 Parker & Edwards	W. Buck, No. 6	484	Robinson-4	844						
61 Parker & Edwards	W. Buck, No. 1	483	Robinson-4	844						
62 Parker & Edwards	W. Buck, No. 16	479	Robinson-4	844						
63 Parker & Edwards	W. Buck, No. 3	454	Robinson-4	844						
64 Parker & Edwards	W. Buck, No. 18	481	Robinson-4	844						
65 Parker & Edwards	W. Buck, No. 10	483	Robinson-4	844						
66 Parker & Edwards	W. Buck, No. 6	484	Robinson-4	844						
67 Parker & Edwards	W. Buck, No. 1	483	Robinson-4	844						
68 Parker & Edwards	W. Buck, No. 16	479	Robinson-4	844						
69 Parker & Edwards	W. Buck, No. 3	454	Robinson-4	844						
70 Parker & Edwards	W. Buck, No. 18	481	Robinson-4	844						
71 Parker & Edwards	W. Buck, No. 10	483	Robinson-4	844						
72 Parker & Edwards	W. Buck, No. 6	484	Robinson-4	844						
73 Parker & Edwards	W. Buck, No. 1	483	Robinson-4	844						
74 Parker & Edwards	W. Buck, No. 16	479	Robinson-4	844						
75 Parker & Edwards	W. Buck, No. 3	454	Robinson-4	844						
76 Parker & Edwards	W. Buck, No. 18	481	Robinson-4	844						
77 Parker & Edwards	W. Buck, No. 10	483	Robinson-4	844						
78 Parker & Edwards	W. Buck, No. 6	484	Robinson-4	844						
79 Parker & Edwards	W. Buck, No. 1	483	Robinson-4	844						
80 Parker & Edwards	W. Buck, No. 16	479	Robinson-4	844						
81 Parker & Edwards	W. Buck, No. 3	454	Robinson-4	844						
82 Parker & Edwards	W. Buck, No. 18	481	Robinson-4	844						
83 Parker & Edwards	W. Buck, No. 10	483	Robinson-4	844						
84 Parker & Edwards	W. Buck, No. 6	484	Robinson-4	844						
85 Parker & Edwards	W. Buck, No. 1	483	Robinson-4	844						
86 Parker & Edwards	W. Buck, No. 16	479	Robinson-4	844						
87 Parker & Edwards	W. Buck, No. 3	454	Robinson-4	844						
88 Parker & Edwards	W. Buck, No. 18	481	Robinson-4	844						
89 Parker & Edwards	W. Buck, No. 10	483	Robinson-4	844						
90 Parker & Edwards	W. Buck, No. 6	484	Robinson-4	844						
91 Parker & Edwards	W. Buck, No. 1	483	Robinson-4	844						
92 Parker & Edwards	W. Buck, No. 16	479	Robinson-4	844						
93 Parker & Edwards	W. Buck, No. 3	454	Robinson-4	844						
94 Parker & Edwards	W. Buck, No. 18	481	Robinson-4	844						
95 Parker & Edwards	W. Buck, No. 10	483	Robinson-4	844						
96 Parker & Edwards	W. Buck, No. 6	484	Robinson-4	844						
97 Parker & Edwards	W. Buck, No. 1	483	Robinson-4	844						
98 Parker & Edwards	W. Buck, No. 16	479	Robinson-4	844						
99 Parker & Edwards	W. Buck, No. 3	454	Robinson-4	844						
100 Parker & Edwards	W. Buck, No. 18	481	Robinson-4	844						
101 Parker & Edwards	W. Buck, No. 10	483	Robinson-4	844						
102 Parker & Edwards	W. Buck, No. 6	484	Robinson-4	844						
103 Parker & Edwards	W. Buck, No. 1	483	Robinson-4	844						
104 Parker & Edwards	W. Buck, No. 16	479	Robinson-4	844						
105 Parker & Edwards	W. Buck, No. 3	454	Robinson-4	844						
106 Parker & Edwards	W. Buck, No. 18	481	Robinson-4	844						
107 Parker & Edwards	W. Buck, No. 10	483	Robinson-4	844						
108 Parker & Edwards	W. Buck, No. 6	484	Robinson-4	844						
109 Parker & Edwards	W. Buck, No. 1	483	Robinson-4	844						
110 Parker & Edwards	W. Buck, No. 16	479	Robinson-4	844						
111 Parker & Edwards	W. Buck, No. 3	454	Robinson-4	844						
112 Parker & Edwards	W. Buck, No. 18	481	Robinson-4	844						
113 Parker & Edwards	W. Buck, No. 10	483	Robinson-4	844						
114 Parker & Edwards	W. Buck, No. 6	484	Robinson-4	844						
115 Parker & Edwards	W. Buck, No. 1	483	Robinson-4	844						
116 Parker & Edwards	W. Buck, No. 16	479	Robinson-4	844						
117 Parker & Edwards	W. Buck, No. 3	454	Robinson-4	844						
118 Parker & Edwards	W. Buck, No. 18	481	Robinson-4	844						
119 Parker & Edwards	W. Buck, No. 10	483	Robinson-4	844						
120 Parker & Edwards	W. Buck, No. 6	484	Robinson-4	844						
121 Parker & Edwards	W. Buck, No. 1	483	Robinson-4	844						
122 Parker & Edwards	W. Buck, No. 16	479	Robinson-4	844						
123 Parker & Edwards	W. Buck, No. 3	454	Robinson-4	844						
124 Parker & Edwards	W. Buck, No. 18	481	Robinson-4	844						
125 Parker & Edwards	W. Buck, No. 10	483	Robinson-4	844						
126 Parker & Edwards	W. Buck, No. 6	484	Robinson-4	844						
127 Parker & Edwards	W. Buck, No. 1	483	Robinson-4	844						
128 Parker & Edwards	W. Buck, No. 16	479	Robinson-4	844						
129 Parker & Edwards	W. Buck, No. 3	454	Robinson-4	844						
130 Parker & Edwards	W. Buck, No. 18	481	Robinson-4	844						
131 Parker & Edwards	W. Buck, No. 10	483	Robinson-4	844						
132 Parker & Edwards	W. Buck, No. 6	484	Robinson-4	844						
133 Parker & Edwards	W. Buck, No. 1	483	Robinson-4	844						
134 Parker & Edwards	W. Buck, No. 16	479	Robinson-4	844						
135 Parker & Edwards	W. Buck, No. 3	454	Robinson-4	844						
136 Parker & Edwards	W. Buck, No. 18	481	Robinson-4	844						
137 Parker & Edwards	W. Buck, No. 10	483	Robinson-4	844						
138 Parker & Edwards	W. Buck, No. 6	484	Robinson-4	844						
139 Parker & Edwards	W. Buck, No. 1	483	Robinson-4	844						
140 Parker & Edwards	W. Buck, No. 16	479	Robinson-4	844						
141 Parker & Edwards	W. Buck, No. 3	454	Robinson-4	844						
142 Parker & Edwards	W. Buck, No. 18	481	Robinson-4	844						
143 Parker & Edwards	W. Buck, No. 10	483	Robinson-4	844						
144 Parker & Edwards	W. Buck, No. 6	484	Robinson-4	844						
145 Parker & Edwards	W. Buck, No. 1	483	Robinson-4	844						
146 Parker & Edwards	W. Buck, No. 16	479	Robinson-4	844						
147 Parker & Edwards	W. Buck, No. 3	454	Robinson-4	844						

## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
26— S. W..	7	Morrison.....	Hughes, No. 2.....	499	Robinson-1.....	818	77	319	1,181	861	.....	.....
	8	Morrison.....	Hughes, No. 1.....	501	Robinson-2.....	901	21	402	1,088	.....	800	.....
	9	Red Bank.....	Renchen, No. 2.....	497	do.....	896	31	369	1,105	.....	75	.....
	10	Red Bank.....	Renchen, No. 3.....	504	Robinson-1.....	898	52	394	1,131	870	200	.....
	11	Red Bank.....	Renchen, No. 1.....	500	do.....	900	33	400	1,106	904	100	.....
	12	Ohio.....	Renchen, No. 3.....	500	Robinson-1.....	845	.....	345	1,155	.....	29	.....
	13	Ohio.....	Rencher, No. 2.....	504	Robinson-2.....	908	49	408	1,092	.....	.....	.....
	14	Ohio.....	Rencher, No. 1.....	498	Robinson-1.....	839	26	335	1,165	.....	.....	.....
	15	Red Bank.....	Wampler, No. 1.....	498	Robinson-2.....	907	35	403	1,097	.....	.....	.....
	16	Red Bank.....	Wampler, No. 3.....	500	Robinson-3.....	900	45	402	1,088	.....	100	.....
	17	Red Bank.....	Wampler, No. 2.....	500	Robinson-2.....	897	8	397	1,103	.....	.....	.....
	18	Ohio.....	Wampler, No. 3.....	500	Robinson-3.....	920	53	420	1,080	.....	40	.....
	19	Ohio.....	Wampler, No. 2.....	506	Robinson-1.....	845	21	345	1,155	.....	75	.....
	20	Ohio.....	Wampler, No. 1.....	500	Robinson-2.....	905	20	400	1,100	.....	.....	.....
	21	Ohio.....	Leonard, No. 4.....	494	Robinson-3.....	938	5	441	1,056	.....	.....	Gas, 935 feet.
	22	Ohio.....	Leonard, No. 1.....	499	do.....	941	26	447	1,053	941	60	Salt water, 945 feet.
	23	Ohio.....	Leonard, No. 2.....	496	do.....	937	38	438	1,062	962	10	Gas, 945 feet.
	24	Ohio.....	Leonard, No. 3.....	484	Robinson-1.....	960	27	454	1,046	.....	.....	Gas, 950 feet. Salt water, 977 feet.
	25	Ohio.....	Renchen, No. 6.....	483	Robinson-2.....	890	.....	347	1,154	.....	42	Gas, 830 feet.
	26	Ohio.....	Renchen, No. 5.....	496	Robinson-3.....	925	10	441	1,059	.....	.....	Salt water, 964 feet.
					Robinson-1.....	837	20	344	1,156	.....	.....	.....
					do.....	905	20	422	1,078	.....	35	.....
					do.....	909	26	414	1,089	.....	.....	.....

18	Brenneman & McDonald.	O. Kirtland, No. 4.	476	Robinson-1 Robinson-2 Robinson-3 Robinson-4 Robinson-5 Robinson-6 Robinson-7 Robinson-8 Robinson-9 Robinson-10 Robinson-11 Robinson-12 Robinson-13 Robinson-14 Robinson-15 Robinson-16 Robinson-17 Robinson-18 Robinson-19 Robinson-20 Robinson-21 Robinson-22 Robinson-23 Robinson-24 Robinson-25 Robinson-26 Robinson-27 Robinson-28 Robinson-29 Robinson-30 Robinson-31 Robinson-32 Robinson-33 Robinson-34 Robinson-35 Robinson-36 Robinson-37 Robinson-38 Robinson-39 Robinson-40 Robinson-41 Robinson-42 Robinson-43 Robinson-44 Robinson-45 Robinson-46 Robinson-47 Robinson-48 Robinson-49 Robinson-50 Robinson-51 Robinson-52 Robinson-53 Robinson-54 Robinson-55 Robinson-56 Robinson-57 Robinson-58 Robinson-59 Robinson-60 Robinson-61 Robinson-62 Robinson-63 Robinson-64 Robinson-65 Robinson-66 Robinson-67 Robinson-68 Robinson-69 Robinson-70 Robinson-71 Robinson-72 Robinson-73 Robinson-74 Robinson-75 Robinson-76 Robinson-77 Robinson-78 Robinson-79 Robinson-80 Robinson-81 Robinson-82 Robinson-83 Robinson-84 Robinson-85 Robinson-86 Robinson-87 Robinson-88 Robinson-89 Robinson-90 Robinson-91 Robinson-92 Robinson-93 Robinson-94 Robinson-95 Robinson-96 Robinson-97 Robinson-98 Robinson-99 Robinson-100	328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997
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**N. W.:**

## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
26— S. E...	21	Whitaker	Doucummen, No. 4.	487	Shallow.	475	5	+12	1,512				
					Robinson-2	888		411	1,089				
					Robinson-3	921	33	434	1,066	921			
	22	Whitaker	Doucummen, No. 3.	486	Robinson-2	865		409	1,091		940		Quit in sand.
					Robinson-3	920	20	434	1,066				
	23	Whitaker	Doucummen, No. 2.	487	Robinson-2	865		408	1,092		944		Quit in sand.
					Robinson-3	918	26	431	1,069	918			
	24	Whitaker	Doucummen, No. 1.	486	Robinson-1	820	10	334	1,166		940		Quit in sand.
					Robinson-3	920	20	434	1,066	920			
	25	Ohio	Fry, No. 1.	482	Robinson-1	818	20	336	1,164				
					Robinson-3	896	22	414	1,086				
	26	Ohio	Fry, No. 2.	484	Robinson-1	822	14	338	1,162		920		
					Robinson-3	914	12	432	1,070				
	27	Ohio	Fry, No. 3.	488	Robinson-1	835	27	347	1,153				
					Robinson-3	920	12	432	1,068				
	28	Ohio	Fry, No. 4.	485	Robinson-1	865	25	410	1,165			100	Gas, 820 feet.
					Robinson-3	920	25	410	1,090	900		128	Gas, 830 feet.
	29	Ohio	Fry, No. 5.	481	Robinson-1	830	15	349	1,151			80	
					Robinson-3	899	13	418	1,082	900			
	30	Red Bank	Fry, No. 2 "R B"	484	Robinson-1	810	30	328	1,174			100	
					Robinson-2	874	16	390	1,110				
	31	Red Bank	Fry No. 2 "B"	477	Robinson-1	832	30	355	1,146			100	
					Robinson-2	892	30	405	1,085	883			
	32	Red Bank	Fry, No. 1 "B"	487	Robinson-1	824	24	413	1,163		902	75	
					Robinson-2	900	24	413	1,087				
	33	Red Bank	Fry, No. 3 "B"	478	Robinson-1	812	13	334	1,166			100	
					Robinson-2	888	38	410	1,080				
	34	Red Bank	Fry, No. 1 "R B"	479	Robinson-1	825	34	446	1,154			100	Gas, 830 feet.
					Robinson-3	901	19	422	1,078	915			
27— N. E...	1	Ohio	McColpin, No. 16.	489	Robinson-1	835	5	346	1,154			100	Gas, 846 feet.
					Robinson-3	943	32	454	1,046	946		75	Gas, 846 feet.
	2	Ohio	McColpin, No. 14.	483	Robinson-2	865	38	373	1,127			120	Gas, 832 feet.





## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
27—S. E....	10	Ohio.....	C. Dennis, No. 15.....	480	Robinson-2.....	862	26	352	1,118	896	.....	200	Gas, 885 feet.....
	11	Ohio.....	C. Dennis, No. 21.....	485	do.....	873	32	388	1,112	875	.....	150	Gas, 874 feet.....
	12	Ohio.....	C. Dennis, No. 16.....	478	do.....	855	34	377	1,123	890	.....	200	Gas, 880 feet.....
	13	Ohio.....	C. Dennis, No. 10.....	486	do.....	890	.....	404	1,096	895	.....	50	Gas, 881 feet.....
	14	North Fork.....	G. Walker, No. 11.....	487	Robinson-1.....	853	9	366	1,134	.....	.....	.....	.....
	15	North Fork.....	G. Walker, No. 7.....	486	Robinson-2.....	884	44	397	1,103	.....	.....	.....	.....
	16	North Fork.....	G. Walker, No. 2.....	487	Robinson-3.....	873	26	383	1,117	.....	.....	.....	.....
	17	North Fork.....	C. Walker, No. 1.....	486	Stray.....	920	30	431	1,099	.....	.....	.....	.....
	18	North Fork.....	C. Walker, No. 5.....	495	Robinson-1.....	810	.....	323	1,177	.....	.....	.....	.....
	19	North Fork.....	C. Walker, No. 3.....	500	Robinson-2.....	857	26	370	1,130	.....	.....	.....	.....
	20	North Fork.....	C. Walker, No. 6.....	493	Robinson-1.....	884	.....	407	1,093	.....	917	.....	.....
	21	North Fork.....	C. Walker, No. 4.....	488	Robinson-2.....	887	.....	378	1,122	.....	.....	.....	.....
	22	North Fork.....	Hicks, No. 1.....	491	Robinson-3.....	885	10	396	1,104	.....	.....	.....	.....
	23	North Fork.....	Hicks, No. 14.....	493	Robinson-3.....	912	28	423	1,077	881	.....	.....	Salt water, 912 feet.....
	24	North Fork.....	Hicks, No. 7.....	496	Robinson-1.....	872	85	377	1,123	.....	.....	.....	.....
					do.....	876	8	376	1,124	.....	.....	.....	.....
					Robinson-2.....	895	.....	395	1,105	.....	.....	.....	.....
					Robinson-3.....	913	21	413	1,087	.....	.....	.....	.....
					Robinson-2.....	897	10	404	1,096	.....	.....	.....	.....
					Robinson-3.....	921	11	428	1,072	.....	.....	.....	.....
					Robinson-2.....	955	11	463	1,058	.....	972	.....	.....
					Robinson-3.....	840	37	331	1,149	885	.....	.....	.....
					Robinson-2.....	897	14	408	1,092	897	.....	.....	.....
					Robinson-3.....	926	33	447	1,053	.....	.....	.....	.....
					Robinson-2.....	875	15	384	1,115	.....	.....	.....	.....
					Robinson-3.....	909	.....	418	1,082	.....	.....	.....	.....
					Stray.....	922	12	429	1,071	.....	934	.....	.....
					Robinson-3.....	946	35	453	1,047	.....	.....	.....	.....
					Robinson-2.....	870	26	374	1,156	.....	.....	.....	.....
					Robinson-2.....	900	45	404	1,096	.....	950	.....	.....

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## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
34— N. E...	14	Stephens, Hawkins & Steele.	Waggoner, No. 2.	490	Robinson-1. Robinson-2. Robinson-3.	887 887 919	7 6 24	371 381 423	1,126 1,109 1,077				
	16	Craig & Lowrie.	Anderson, No. 1.	495								No record.	
	17	Stephens, Hawkins & Steele.	Waggoner, No. 3.	493	Robinson-1. Robinson-2. Robinson-3. Robinson-4.	884 886 907 942	13 14 31 13	371 283 414 449	1,126 1,107 1,080 1,051		938		
	18	Stephens, Hawkins & Steele.	Padgett, No. 6.	493								No record.	
	19	Stephens, Hawkins & Steele.	Padgett, No. 5.	497								do.	
	20	Porter.	Church Lot, No. 1.	503								do.	
	21	Parker-Edwards.	Hardin, No. 4.	500	Robinson-1. Robinson-2. Robinson-3.	878 907 928	14 17 41	378 407 426	1,122 1,093 1,072		969		
	22	Parker Edwards.	Hardin, No. 3.	494	Robinson-1. Robinson-2. Robinson-3.	876 906 925	20 14 26	382 402 431	1,116 1,098 1,069		951		
	23	Parker-Edwards.	Hardin, No. 2.	490	Robinson-1. Robinson-2.	859 881	11 46	369 391	1,131 1,109		942		
	24	Stephens, Hawkins & Steele.	Padgett, No. 4.	493								No record.	
	25	Stephens, Hawkins & Steele.	Padgett, No. 2.	492								do.	
	26	Stephens, Hawkins & Steele.	Padgett, No. 1.	495								do.	
	27	Stephens, Hawkins & Steele.	Padgett, No. 3.	495								do.	
	28	Parker-Edwards.	Hardin, No. 1.	496	Robinson-1. Robinson-2. Robinson-3.	863 890 914	14 14 16	366 394 418	1,134 1,106 1,082				

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## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
34—S. E...	28	Parker-Crowley	Barnett, No. 6	486	Robinson-3	940	25	454	1,046				No record
35—N. E...	1	Red Bank	C. D. Doucumen, No. 1	486	Robinson-1	810		323	1,177			100	
	2	Red aek	C. D. Doucumen, No. 2	487	Robinson-3	920		442	1,058	921			
	3	Red Bank	C. D. Doucumen, No. 3	483	Robinson-4	940	32	453	1,047	940			
	4	Ohio	C. D. Doucumen, No. 3	470	Robinson-2	917	41	424	1,076			40	
	5	Ohio	C. D. Doucumen, No. 1	479	Shallow	419	9	+51	1,551				
	1	Ohio	C. D. Doucumen, No. 4	479	do	456	10	+14	1,514				
	2	Ohio	C. D. Doucumen, No. 3	485	Robinson-1	815		345	1,155	962			Gas 3,000,000 cubic feet of gas.
	3	Ohio	Shipman, No. 2	479	Robinson-1	825	16	321	1,179	818			Gas Gas, 804 feet.
	4	Ohio	Shipman, No. 2	485	Robinson-2	938		340	1,160				
	5	Ohio	Shipman, No. 5	495	Robinson-1	812	140	453	1,047	940			80 Salt water, 987 feet.
	6	Ohio	Shipman, No. 4	499	Robinson-3	939	25	444	1,056	940			Gas Gas, 820 feet.
	7	Ohio	Shipman, No. 1	503	Robinson-3	958		350	1,150				40 Gas, 945 feet.
	8	Ohio	Shipman, No. 6	507	Robinson-2	948	15	459	1,041	960			75 Gas, 968 feet.
	9	Ohio	Shipman, No. 7	507	Robinson-3	975	112	407	1,083	850			20 Salt water, 1,063 feet.
	10	Ohio	Shipman, No. 8	507	Robinson-3	986		389	1,111				Gas Gas, 804 feet.
	11	Ohio	Shipman, No. 9	503	Robinson-3	952	6	468	1,032	975			8 Salt water, 987 feet.
	12	Ohio	Shipman, No. 10	503	Robinson-2	904	6	401	1,099	940			12 No record.
	13	Ohio	Shipman, No. 11	480	Robinson-1	902	30	328	1,172				Gas Gas, 802 feet.
	14	Ohio	Shipman, No. 12	474	Robinson-3	877	22	408	1,065				
	15	Ohio	Shipman, No. 13	472	Robinson-1	781	13	310	1,190				
	16	Ohio	Shipman, No. 14	471	Robinson-2	847	13	376	1,124				
	17	Ohio	Shipman, No. 15	471	Robinson-3	895	20	424	1,076				
	18	Ohio	Shipman, No. 16	471	Robinson-3	845	20	376	1,125				
	19	Ohio	Shipman, No. 17	470	Robinson-3	898	13	428	1,072				

S. W.	1 Crescent	Shultz, No. 3	461	Robinson-1	866	12	457	1,063	963		
				Robinson-2	925	26	450	1,060			
	2 Flannigan	Murphy, No. 1	452	Robinson-1	872	6	430	1,060			
				Robinson-3	894	8	442	1,058			
	3 Crescent	Shultz, No. 2	470	Robinson-4	968			994	958		Salt water
				Robinson-3	965	15	465	1,055	986		
	4 Crescent	Shultz, No. 1	465	Robinson-1	880	6	415	1,055			
				Robinson-2	905	5	440	1,060			
				Robinson-4	1,010	56	445	965	1,068		Dry
				Stray	841	9	392	1,06			
S. E.	1 Mahutaka	Netherly, No. 1	449	Robinson-1	868	22	419	1,061			50
				Robinson-1	830	5	380	1,120			
	2 Mahutaka	Netherly, No. 3	450	Robinson-1	890	10	410	1,060			50
				do	889	6	419	1,061			
	3 Mahutaka	Netherly, No. 4	470	Robinson-4	1,046		576	924			Salt water. Well abandoned
											oned
	4 Mahutaka	Netherly, No. 2	450	Robinson-1	800	12	410	1,060	860		50
	5 Lord	Kirtland, No. 1	450	do	850	15	400	1,100			
	6 Lord	Kirtland, No. 6	450	do	842		392	1,108	842		
	7 Ohio	Keeley, No. 16	450	do	846	85	366	1,104			Dry
9— N. E.	1 Ohio	C. Dees, No. 14	457	do	844	16	387	1,113	848		200 Gas, 846 feet
	2 Ohio	C. Dees, No. 11	458	do	846	11	388	1,112	850		140 Gas, 848 feet
	3 Ohio	C. Dees, No. 15	457	do	845	26	388	1,112	852		80 Gas, 851 feet
	4 Ohio	C. Dees, No. 16	456	do	845	17	389	1,111	848		60 Gas, 848 feet
	5 Ohio	C. Dees, No. 10	472	do	859	14	387	1,113	862		120 Gas, 861 feet
	6 Ohio	C. Dees, No. 9	457	do	845	18	386	1,112	848		175 Gas, 847 feet
	7 Ohio	C. Dees, No. 7	460	do	840	19	380	1,120	847		50 Gas, 844 feet
	8 Red Bank	Wall, No. 5	477	do	855	8	378	1,123			50
	9 Red Bank	Wall, No. 4	476	do	850	25	374	1,125	858		75
				do	864	8	385	1,115			
	10 Crescent	Wall, No. 4	479	Robinson-2	877	8	368	1,102			
				Robinson-1	859	26	383	1,117	870		Gas, 859 feet
	11 Crescent	Wall, No. 1	476	Robinson-2	898	18	422	1,078			
				Robinson-2	898	23	376	1,124			
	12 Crescent	Wall, No. 2	482	Robinson-1	858	15	387	1,113			
	13 Crescent	Wall, No. 5	470	do	857	15	380	1,120	845		100
	14 Red Bank	Wall, No. 3	460	do	840	12	380	1,120			
	15 Red Bank	Wall, No. 2	476	do	849	31	373	1,127	857		100
	16 Red Bank	Wall, No. 1	467	do	835	25	366	1,132	840		150
				do	851	11	372	1,127			
	17 Crescent	Wall, No. 6	478	Robinson-2	882	20	404	1,066			
				Robinson-1	890	16	376	1,122			
	18 Crescent	Parker & Edwards	482	do	868		376	1,124	858		894
	19 Parker & Edwards	Wall, No. 8	482	do	862		380	1,120			
	20 Parker & Edwards	Wall, No. 1	465	do	842	38	377	1,128	883		883
	21 Parker & Edwards	Wall, No. 2	464	do	861	16	377	1,128	865		910
	22 Parker & Edwards	Wall, No. 7	484	do	843	33	383	1,117	883		
	23 Parker & Edwards	Wall, No. 3	463	do	824	32	371	1,129			
	24 Parker & Edwards	Wall, No. 6	459	do	835	50	376	1,124			
	25 Parker & Edwards	Wall, No. 5	458	do	830	26	392	1,108	855		
	26 Parker & Edwards	Wall, No. 4	458	do	850	26	392	1,108			
	27 Ohio	C. Dees, No. 5	458	do	850	13	392	1,108	852		150 Gas, 852 feet
	28 Ohio	C. Dees, No. 4	466	do	867	11	386	1,114			100 Gas, 854 feet

## Crawford County—Martin Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
36—N. E.	20 Ohio.....	Adams, No. 6.....	Adams, No. 6.....	452	803	27	351	1,149	805	.....	15	Gas, 805 feet
	21 Ohio.....	Adams, No. 8.....	Adams, No. 8.....	453	802	25	349	1,151	805	.....	45	Gas, 805 feet
	22 Ohio.....	Adams, No. 2.....	Adams, No. 2.....	467	790	32	325	1,172	813	.....	200	Gas, 813 feet
N. W.	1 Ohio.....	American Oil & Development Co.....	Adams, No. 7.....	462	790	32	325	1,172	808	.....	40	Gas, 790 feet
	2 Ohio.....	American Oil & Development Co.....	Richart, No. 5.....	464	814	31	350	1,150	833	.....	.....	.....
	3 Ohio.....	American Oil & Development Co.....	Richart, No. 4.....	475	824	41	349	1,151	.....	.....	100	.....
	4 Ohio.....	American Oil & Development Co.....	Richart, No. 3.....	467	863	32	396	1,104	.....	.....	.....	.....
	5 Ohio.....	American Oil & Development Co.....	Richart, No. 3.....	467	895	17	458	1,042	926	943	50	.....
	6 Ohio.....	American Oil & Development Co.....	Shallow.....	460	840	14	179	1,321	811	.....	.....	.....
	7 Ohio.....	American Oil & Development Co.....	Richart, No. 6.....	461	792	24	331	1,169	811	.....	.....	.....
	8 Ohio.....	American Oil & Development Co.....	Robinson-1.....	461	800	30	389	1,111	876	.....	.....	.....
	9 Ohio.....	American Oil & Development Co.....	Robinson-2.....	464	767	58	303	1,197	.....	.....	100	.....
	10 Ohio.....	American Oil & Development Co.....	Stray.....	464	757	32	332	1,188	792	.....	.....	.....
	11 Ohio.....	American Oil & Development Co.....	Robinson-1.....	455	829	5	374	1,126	.....	.....	.....	.....
	12 Ohio.....	American Oil & Development Co.....	Robinson-2.....	455	860	42	365	1,106	897	.....	.....	.....
S. E.	13 Ohio.....	American Oil & Development Co.....	Robinson-3.....	464	807	26	339	1,181	.....	.....	100	.....
	14 Ohio.....	American Oil & Development Co.....	Robinson-1.....	468	804	24	336	1,184	820	.....	.....	.....
	15 Ohio.....	American Oil & Development Co.....	Robinson-2.....	468	790	27	325	1,175	.....	.....	20	.....
	16 Ohio.....	American Oil & Development Co.....	Robinson-3.....	465	790	27	325	1,175	.....	.....	20	.....
	17 Ohio.....	American Oil & Development Co.....	Robinson-1.....	465	791	19	335	1,165	818	.....	25	No record
	18 Ohio.....	American Oil & Development Co.....	Robinson-2.....	465	803	19	331	1,169	800	.....	.....	.....
	19 Ohio.....	American Oil & Development Co.....	Robinson-3.....	465	803	19	331	1,169	800	.....	.....	.....
	20 Ohio.....	American Oil & Development Co.....	Robinson-1.....	475	804	19	330	1,170	791	.....	60	Gas, 827 feet
	21 Ohio.....	American Oil & Development Co.....	Robinson-2.....	475	804	19	330	1,170	791	.....	80	Gas, 806 feet
	22 Ohio.....	American Oil & Development Co.....	Robinson-3.....	475	812	32	319	1,181	.....	.....	.....	.....
	23 Ohio.....	American Oil & Development Co.....	Robinson-1.....	456	804	12	336	1,144	.....	.....	.....	.....
	24 Ohio.....	American Oil & Development Co.....	Robinson-2.....	464	906	19	412	1,058	910	.....	5	Gas, 860 feet

S. W.	17 Ohio.....	Docummen, No. 5.....	452	do.....	886	10	434	1,066	823	40	.....
	18 Ohio.....	Docummen, No. 3.....	479	Robinson-1.....	800	11	320	1,170	.....	30	.....
	19 Morrison.....	Docummen, No. 7.....	468	do.....	791	11	323	1,177	.....	100	Gas, 867 feet.
	20 Morrison.....	Docummen, No. 2.....	463	Robinson-1.....	809	11	341	1,159	.....	22	Salt water, 927 feet.
	1 Ohio.....	Sparks, No. 1.....	466	Robinson-2.....	788	12	326	1,174	.....	Gas	.....
	2 Red Bank.....	Maxwell, No. 3.....	451	Robinson-3.....	808	10	401	1,099	905	.....	.....
	3 Ohio.....	Maxwell, No. 6.....	447	Robinson-2.....	867	10	437	1,063	.....	.....	.....
	4 Ohio.....	Maxwell, No. 7.....	448	Robinson-3.....	903	10	379	1,121	772	.....	.....
	5 Hazelwood.....	Pope, No. 3.....	442	Robinson-1.....	830	15	461	1,039	.....	.....	.....
	6 Hazelwood.....	Pope, No. 16.....	446	Robinson-3.....	912	20	326	1,174	.....	.....	.....
	7 Hazelwood.....	Pope, No. 2.....	444	do.....	773	20	324	1,178	.....	.....	.....
	8 Hazelwood.....	Pope, No. 18.....	441	Robinson-2.....	772	3	324	1,178	.....	.....	.....
	9 Hazelwood.....	Pope, No. 1.....	441	Robinson-3.....	891	11	443	1,057	.....	.....	.....
	10 Hazelwood.....	Pope, No. 6.....	443	Robinson-1.....	775	8	333	1,167	.....	.....	.....
	1 Leeper Bros.....	Sparks, No. 4.....	460	Robinson-3.....	888	12	446	1,054	.....	.....	.....
	2 Leeper Bros.....	Sparks, No. 1.....	454	Robinson-1.....	770	32	324	1,176	906	.....	.....
	3 Leeper Bros.....	Sparks, No. 13.....	459	Robinson-2.....	773	27	329	1,171	.....	.....	.....
	4 Leeper Bros.....	Sparks, No. 17.....	467	Shallow.....	850	27	406	1,094	887	.....	.....
	5 Leeper Bros.....	Sparks, No. 15.....	467	Robinson-1.....	885	33	346	1,152	.....	.....	.....
	6 Leeper Bros.....	Sparks, No. 14.....	465	do.....	767	23	326	1,174	.....	.....	.....
	7 Leeper Bros.....	Sparks, No. 12.....	466	do.....	782	38	341	1,159	.....	.....	.....
	8 Leeper Bros.....	Sparks, No. 16.....	465	Robinson-2.....	857	13	416	1,064	872	.....	.....
	9 Leeper Bros.....	Sparks, No. 9.....	463	Robinson-1.....	775	28	332	1,168	.....	.....	.....
	10 Leeper Bros.....	Sparks, No. 10.....	461	Robinson-2.....	846	15	405	1,097	892	.....	.....
	11 Leeper Bros.....	Sparks, No. 18.....	470	Robinson-1.....	792	38	332	1,168	877	.....	.....
	12 Leeper Bros.....	Sparks, No. 8.....	453	Shallow.....	390	45	464	1,564	468	.....	.....
	13 Leeper Bros.....	Sparks, No. 6.....	450	Robinson-1.....	799	32	340	1,150	909	.....	.....
	14 Leeper Bros.....	Sparks, No. 5.....	448	do.....	815	23	348	1,152	899	.....	.....
	15 Leeper Bros.....	Maxwell, No. 5.....	445	do.....	810	20	343	1,157	.....	.....	.....
	16 Ohio.....	Maxwell, No. 1.....	452	Robinson-2.....	851	3	384	1,116	870	.....	Quit in sand.
S. E.	17 Wabash.....	American Oil & Develop- ment Co.....	452	Robinson-1.....	808	22	343	1,157	852	.....	.....
	18 American Oil & Develop- ment Co.....	Richart, No. 27.....	452	do.....	824	26	358	1,142	910	.....	.....
	19 American Oil & Develop- ment Co.....	Richart, No. 14.....	453	do.....	823	15	358	1,142	.....	.....	.....
	20 American Oil & Develop- ment Co.....	Richart, No. 16.....	450	Robinson-2.....	851	14	386	1,114	902	.....	.....
				Robinson-1.....	826	20	363	1,137	.....	.....	.....
				do.....	804	32	343	1,157	861	.....	Gas, 815 feet.
				do.....	817	22	347	1,153	875	.....	.....
				do.....	789	23	336	1,164	903	.....	No record.
				Robinson-1.....	772	22	324	1,176	794	.....	.....
				do.....	905	20	343	1,157	820	.....	.....
				do.....	772	27	327	1,173	872	25	.....
				do.....	790	6	338	1,162	.....	.....	.....
				Robinson-3.....	880	25	438	1,062	.....	.....	Salt water, 918 feet.
				Robinson-1.....	788	30	336	1,164	851	.....	.....
				do.....	787	34	335	1,165	821	.....	Quit in sand.
				do.....	795	20	345	1,155	.....	.....	.....
				Robinson-3.....	917	20	467	1,033	25	.....	.....



## Crawford County—Martin Township—Concluded.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
36— S. E. . . .	21	American Oil & Development Co.	Richard, No. 17.	445	Robinson-1	806	8	343	1,137	808	35	.....
	21				Robinson-2	818	11	373	1,127	.....	.....	.....
					Robinson-3	831	18	486	1,014	.....	.....	Salt water, 931 feet.
	22	Riddle	Mann, No. 5.	450	Robinson-1	823	12	353	1,147	807	50	.....
	23	Riddle	Mann, No. 6.	455	Robinson-3	823	32	473	1,027	.....	.....	Salt water, 930 feet.
	23	Riddle	Mann, No. 6.	455	Robinson-1	800	32	345	1,155	.....	.....	.....
	24	Riddle	Mann, No. 7.	455	do	819	14	384	1,136	.....	40	.....
	25	Riddle	Mann, No. 8.	450	Robinson-3	911	26	456	1,044	.....	.....	.....
	25	Riddle	Mann, No. 8.	450	Robinson-1	815	15	395	1,133	.....	.....	.....
	25	Riddle	Mann, No. 8.	450	Robinson-3	919	19	469	1,031	838	.....	.....
	26	Riddle	Mann, No. 4.	445	Robinson-1	872	19	357	1,143	816	40	Gas, 915 feet.
	26	Riddle	Mann, No. 4.	445	Robinson-3	912	26	467	1,033	915	.....	.....
	27	Riddle	Mann, No. 3.	450	Robinson-1	796	35	345	1,155	801	Shore	.....
	27	Riddle	Mann, No. 3.	450	Robinson-3	883	41	443	1,057	.....	40	.....
	28	Riddle	Mann, No. 2.	450	Robinson-1	815	5	365	1,135	.....	.....	.....
	28	Riddle	Mann, No. 2.	450	Robinson-3	901	32	451	1,049	.....	80	.....
	29	Riddle	Mann, No. 1.	451	Robinson-3	908	47	457	1,043	.....	40	.....

## Crawford County—Oblong Township.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
N. E...	2—	1 Cromack	Stephens, No. 6.	511	Stray.	886	12	384	1,116	940		Salt water, 976 feet. Coal 224 and 420 feet.
					Robinson-1.	930	35	419	1,081	983		This formation contained pebbles.
					Robinson-3.	973	3	462	1,038			
		2 Cromack	Stephens, No. 8.	510	Robinson-1.	925	45	415	1,085	940	10	Coal 226 feet.
					do.	924	47	415	1,085	940		Gas, 924 feet.
					Stephens, No. 7.	974	3	465	1,035	977	Show	Quit in sand.
		4 Cromack	Stephens, No. 2.	502	Robinson-3.	930	29	428	1,072		50	
					Robinson-3.	964	13	462	1,038			
					Stray.	885	64	381	1,119	940	10	
		5 Cromack	Stephens, No. 1.	504	do.	885	10	432	1,068			
					Robinson-2.	934	42	437	1,063		250	
					Stray.	841	15	371	1,129			
		7 Bailey & Fritz	Stephens, No. 4.	470	Robinson-1.	880	44	410	1,090			
					Stray.	765		297	1,203	968		Salt water, 968 feet.
					Robinson-2.	896	28	428	1,072			
		8 Bailey & Fritz	Stephens, No. 2.	468	Stray.	855	55	358	1,142		Light	
					do.	937	55	440	1,060		Light	
					Robinson-2.	909	38	439	1,061	919	100	Salt water, 947 feet.
		10 Fisher	Miller No. 2.	476	do.	923	31	447	1,063	937	5	
					Miller No. 3.	945	24	438	1,062	949	25	
					Miller No. 4.	507	29	438	1,062	951	25	
		12 Fisher	Miller No. 5.	511	do.	949	29	449	1,061	959	25	
					Miller No. 6.	957	20	449	1,061	961	25	
					Stephens, No. 5.	960	24	453	1,047	984	25	Salt water, 984 feet.
		16 Cromack	Stephens, No. 4.	507	Robinson-1.	924	26	417	1,063		20	Quit in sand.
					Robinson-2.	933	18	446	1,054	971	do.	
					do.	935	25	426	1,074		75	Salt water, 978 feet.
N. W...	18 Cromack	Bailey & Fritz	Stephens, No. 3.	509	Robinson-3.	966	21	457	1,043	987	Gas, 946 feet, 2,000,000 cubic feet, daily.	
					Stray.	846	24	348	1,163		Gas	
					Robinson-2.	919	11	421	1,079	963		

## Crawford County—Oblong Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
2— N. W.	2	Bailey & Fritz.	Boa, No. 3.	472	Stray	800	10	328	1,172				No record
	3	Bailey & Fritz.	Boa, No. 1.	472	do.	820	20	348	1,152				
	4	Bailey & Fritz.	Pureell, No. 1.	468	Robinson-1	903	33	431	1,069	940			
	5	Bailey & Fritz.	Pureell, No. 2.	465	Robinson-2	860	20	392	1,108	904		5	Well abandoned. Salt water, 924 feet.
	6	Bailey & Fritz.	Pureell, No. 4.	465	Stray	835	9	462	1,130				
	7	Bailey & Fritz.	Pureell, No. 3.	464	Robinson-3	927	9	462	1,038	927			
	8	Bailey & Fritz.	Pureell, No. 3.	464	Robinson-1	860	20	395	1,105	916		75	
	9	Bailey & Fritz.	Pureell, No. 4.	472	Robinson-3	919	20	454	1,046	920		100	Gas, 940 feet.
	10	Bailey & Fritz.	Reed, No. 5.	466	Robinson-3	942	25	470	1,030	830		100	Gas, 925 feet.
	11	Bailey & Fritz.	Reed, No. 1.	466	Stray	935	16	366	1,134	935		75	Gas, 925 feet.
	12	Bailey & Fritz.	Reed, No. 6.	490	do.	933	10	473	1,027	933		75	Salt water, 971 feet.
	13	Bailey & Fritz.	Reed, No. 2.	462	do.	938	10	470	1,030	938		35	
	14	Bailey & Fritz.	Reed, No. 3.	474	Robinson-1	870	20	386	1,114	860		15	
	15	Bailey & Fritz.	Miller, No. 10.	490	do.	960	9	470	1,030	969			
	16	Bailey & Fritz.	Miller, No. 9.	494	do.	949	20	465	1,035	951			
	17	Bailey & Fritz.	Miller, No. 11.	467	Stray	823	10	356	1,144	922			Quit in sand. Well abandoned.
	17	Bailey & Fritz.	Miller, No. 1.	469	Robinson-3	922	13	455	1,045	922			
S. W.	1	Wark	Lackey, No. 2.	495	Robinson-2	900	22	431	1,099				
	2	Wark	Lackey, No. 2.	495	Robinson-3	953	53	458	1,042				
	3	Wark	R. W. No. 1.	496	Stray	1,205	4	811	699				
	4	Wark	R. W. No. 8.	490	Stray	1,120	20	925	675			Dry	
					Stray	875	2	379	1,121	990		Dry	
					Robinson-2	837	50	447	1,053	945			Well abandoned
					Robinson-1	887	8	387	1,113				
					Robinson-3	908	18	468	1,032			30	





12	Treat, Crawford & Treat.	Birch, No. 12.	496	Robinson-1	986	400	1,000	918	50	
13	Treat, Crawford & Treat.	Birch, No. 13.	493	Robinson-2	913	417	1,083	918	50	
14	Red Bank.	E. Miller, No. 1 "B"	499	Robinson-3	980	387	1,113	985	100	
15	Wabash.	E. Miller, No. 1.	500	Robinson-1	925	432	1,048	985	400	
16	Wabash.	E. Miller, No. 2.	495	Robinson-2	912	381	1,087			
17	Wabash.	E. Miller, No. 3.	498	Robinson-1	930	381	1,110			
18	Red Bank.	E. Miller, No. 1 "RB"	498	Robinson-2	930	381	1,070			
19	Ohio.	E. Miller, No. 1.	498	do	933	388	1,022			
20	Ohio.	E. Miller, No. 2.	498	do	933	388	1,022			
21	Ohio.	E. Miller, No. 4.	495	do	933	388	1,022			
22	Ohio.	E. Miller, No. 6.	496	do	933	388	1,022			
23	Ohio.	E. Miller, No. 7.	499	do	933	388	1,022			
24	Mahutska.	P. Miller, No. 10.	500	Stray	933	388	1,114	916		
25	Mahutska.	P. Miller, No. 6.	495	Robinson-1	933	388	1,139			
26	Mahutska.	P. Miller, No. 3.	496	do	933	388	1,055			200 Gas, 924 feet.
27	Mahutska.	P. Miller, No. 1.	496	Robinson-3	933	388	1,055			200
28	Mahutska.	P. Miller, No. 11.	496	Robinson-2	933	388	1,055			200
1	Red Bank.	J. Taylor, No. 1.	485	Robinson-1	933	388	1,055			200
2	Red Bank.	J. Taylor, No. 2.	477	Robinson-3	933	388	1,055			200
3	Ohio.	J. Taylor, No. 1.	487	do	933	388	1,055			200
4	Ohio.	Hamilton, No. 1.	476	Robinson-1	933	388	1,055			200
5	Ohio.	Hamilton, No. 6.	484	Robinson-2	933	388	1,055			200
6	Ohio.	Hamilton, No. 7.	488	Robinson-3	933	388	1,055			200
7	Ohio.	J. Taylor, No. 6.	490	Robinson-4	933	388	1,055			200
8	Ohio.	J. Taylor, No. 2.	479	Robinson-1	933	388	1,055			200
1	Ohio.	Hamilton, No. 5.	501	Robinson-3	933	388	1,055			200
2	Ohio.	Hamilton, No. 4.	506	Robinson-2	933	388	1,055			200
3	Ohio.	Hamilton, No. 2.	511	Robinson-1	933	388	1,055			200
4	Ohio.	P. Miller, No. 1.	511	do	933	388	1,055			200
5	Ohio.	Hamilton, No. 3.	505	Robinson-3	933	388	1,055			200
6	Ohio.	Hamilton, No. 8.	504	Robinson-4	933	388	1,055			200
7	Ohio.	Hamilton, No. 9.	507	Robinson-2	933	388	1,055			200

S. W...

S. E...



16	Jennings	McCullis, No. 3	475	Robinson-2	867	14	392/	392/	1,08	930	Salt water
				Robinson-3	900	20	426	426	1,075	930	
17	Jennings	McCullis, No. 6	471	Robinson-4	925	5	450	450	1,050	912	Quit in sand
				Robinson-1	812	71	341	341	1,159	905	
18	Jennings	McCullis, No. 8	476	Robinson-3	886	9	426	426	1,075	828	
				Stray	810	25	334	334	1,166	912	
19	Jennings	McCullis, No. 22	477	Robinson-2	874	18	398	398	1,102	912	Quit in sand
				Robinson-3	906	6	430	430	1,070	912	
				Robinson-1	835	20	358	358	1,142	918	Quit in sand
				Robinson-2	860	18	383	383	1,117	918	
				Robinson-3	904	14	427	427	1,073	918	
1	Brennan & McDonald	G. Dee, No. 1	461	Robinson-1	866	14	405	405	1,045	866	
2	Brennan & McDonald	G. Dee, No. 2	460	Robinson-2	892	30	431	431	1,069	975	
3	Brennan & McDonald	G. Dee, No. 3	463	Robinson-3	943	27	482	482	1,018	975	
4	Brennan & McDonald	Wekman, No. 5	485	Robinson-1	863	10	403	403	1,097	945	Salt water
5	Brennan & McDonald	Wekman, No. 4	497	Robinson-2	860	22	397	397	1,103	945	
6	Brennan & McDonald	Wekman, No. 1	460	Robinson-3	894	24	431	431	1,069	945	
7	Brennan & McDonald	Wekman, No. 2	496	Robinson-1	890	19	405	405	1,065	945	
8	Brennan & McDonald	Wekman, No. 3	497	Robinson-2	890	24	431	431	1,065	945	
9	McBride	Muchmore, No. 6	518	Robinson-3	860	8	363	363	1,137	987	Salt water
10	McBride	Muchmore, No. 2	465	Stray	860	8	363	363	1,137	987	do
11	McBride	Muchmore, No. 1	321	Robinson-1	896	20	399	399	1,101	987	do
12	McBride	Muchmore, No. 5	307	Robinson-1	822	92	363	363	1,138	987	do
13	McBride	Muchmore, No. 7	479	Robinson-2	921	24	461	461	1,039	987	do
1	McBride	Muchmore, No. 3	317	Robinson-3	892	37	396	396	1,104	987	do
2	McBride	Muchmore, No. 4	509	Robinson-1	974	22	478	478	1,022	987	do
3	Unknown	Caywood, No. 1	515	Robinson-2	941	19	444	444	1,056	987	do
1	Mahutsa	Orniston, No. 1	505	Robinson-3	827	5	453	453	1,017	987	do
2	Thompson	Caywood, No. 2	499	Robinson-1	814	13	385	385	1,115	987	do
3	Thompson	Caywood, No. 1	499	Robinson-2	915	8	408	408	1,092	987	do
1	Pure	Heck, No. 5	496	Robinson-3	945	10	438	438	1,062	987	do
2	Ohio	Zelger, No. 4	497	do	912	53	433	433	1,067	987	do
3	Brennan & McDonald	Zelger, No. 3	479	Robinson-1	912	23	421	421	1,079	987	do
4	Red Bank	Zelger, No. 2	464	Robinson-2	912	8	403	403	1,067	987	do
5	Red Bank	Zelger, No. 1	471	Robinson-3	904	16	432	432	1,068	987	do
				Robinson-1	941	7	479	479	1,021	987	do
				Robinson-2	929	5	398	398	1,102	987	do
				Robinson-3	903	15	424	424	1,076	987	do
				Robinson-1	905	20	466	466	1,004	987	do
				Robinson-2	906	19	467	467	1,003	987	do
				Robinson-3	935	17	439	439	1,081	987	do
				Robinson-1	965	22	468	468	1,032	987	do
				Robinson-2	872	14	393	393	1,107	987	do
				Robinson-3	902	10	423	423	1,077	987	do
				Robinson-1	918	21	439	439	1,061	987	do
				Robinson-2	890	41	416	416	1,084	987	do
				do	902	51	431	431	1,099	987	do



## Crawford County—Oblong Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet	Band.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
15—												
N. W..												
	9 Ohio.		Mann, No. 12.....	487	927		440	1,090	986		50	Gas, 930 feet.
	10 Ohio.		Mann, No. 13.....	482	924		442	1,058	930		50	Gas, 927 feet.
	11 Ohio.		Mann, No. 25.....	492	940		448	1,052	900		80	Gas, 945 feet.
	12 Ohio.		Mann, No. 24.....	494	940	55	446	1,054	946		100	Gas, 946 feet.
	13 Ohio.		Mann, No. 11.....	482	926	29	444	1,056	940		60	Gas, 930 feet.
	14 Ohio.		Mann, No. 14.....	482	910	45	428	1,072	920		80	Gas, 912 feet.
	15 Ohio.		Mann, No. 23.....	467	898	22	431	1,099	910		120	Gas, 902 feet.
	16 Ohio.		Ricker, No. 8.....	493	899	28	396	1,114	876			Gas, 870 feet.
	17 Ohio.		Ricker, No. 7.....	480	927	40	444	1,056				
	18 Ohio.		Ricker, No. 2.....	480	931	37	383	1,117		946		
	19 Ohio.		Ricker, No. 5.....	480	916	36	436	1,064		964		
	20 Ohio.		Ricker, No. 9.....	482	912		432	1,068		900		
	21 Ohio.		Ricker, No. 3.....	482	857	25	376	1,126	917			Gas, 917 feet.
	22 Ohio.		Ricker, No. 4.....	482	912	46	430	1,070				
	23 Ohio.		Ricker, No. 6.....	481	911	33	385	1,115	931			
	24 Ohio.		Ricker, No. 1.....	480	912	38	428	1,071		900		
	25 Red Bank.		Ricker, No. 2 "R".....	480	931	29	446	1,051	931			
	26 Ohio.		Ricker, No. 3 "R".....	481	912	35	376	1,124	919			Gas, 919 feet.
	27 Wabash.		Ricker, No. 2.....	480	916	46	431	1,069				
	28 Red Bank.		Ricker, No. 2 "B".....	480	916	26	436	1,064	983			
	29 Red Bank.		Ricker, No. 3 "B".....	486	923	19	442	1,058			25	
	30 Wabash.		Ricker, No. 2.....	484	923	36	422	1,078			30	
	31 Red Bank.		Ricker, No. 4 "R".....	485	921	31	447	1,066				
			Ricker, No. 3.....	484	927	50	376	1,134				
			Ricker, No. 4 "R".....	485	927	50	443	1,065				
			Ricker, No. 4 "R".....	485	874	74	387	1,118	938		50	



## Crawford County—Oblong Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face ele-va-tion—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
10— N. W.	12	Parker and Edwards	Harbison, No. 2	458	Robinson-1	824	16	366	1,134	829			
					Robinson-2	859	6	401	1,099				
					Robinson-3	800		432	1,068			Dry	
					Stray	911		433	1,047	947			
13	Parker and Edwards	Harbison, No. 10	456	Robinson-1	848	6	392	1,108					
				Stray	765		309	1,191					
				do.	821	8	365	1,135					
				Robinson-1	838	19	382	1,118					
14	Parker and Edwards	Harbison, No. 6	456	Robinson-1	870	17	414	1,066	874				
				Robinson-2	847	17	383	1,117					
				Imboden, No. 1	930	32	439	1,041	942			Well abandoned	
				Imboden, No. 2	931	14	443	1,037					
S. W.	3	Ohio	Imboden, No. 3	488	do.	838	10	350	1,150				
					Stray	883	10	396	1,105				
					Robinson-2	942	29	454	1,046			10	
					Robinson-3	925	30	455	1,045				
5	Ohio	J. Lackey, No. 2	470	Robinson-2	908	14	396	1,102					
				Robinson-3	925	30	455	1,045					
				Robinson-1	852	38	365	1,135	856		120	Gas, 856 feet.	
				Robinson-3	930	12	443	1,037					
6	Ohio	J. Lackey, No. 5	487	Robinson-1	859	26	368	1,132					
				Robinson-2	944	30	439	1,047					
				Robinson-3	973	487	431	1,013				Salt water	
				Robinson-4	921	39	431	1,049	922		Gas, 921 feet.		
7	Ohio	J. Lackey, No. 4	491	Robinson-3	938	29	451	1,049					
				do.	845	12	373	1,128				Quit in sand	
				Robinson-1	906	23	433	1,067	929				
				Robinson-3	936	36	376	1,125			160	Oil in slate, 949 to 954 feet	
8	Ohio	J. Lackey, No. 1	488	Robinson-1	923	31	435	1,065					
				Robinson-3	900	12	402	1,098					
				Robinson-1	926	24	438	1,062			160	Gas, 931 feet. Quit in sand	
				Robinson-3	926	24	438	1,062			160	Gas, 931 feet. Quit in sand	
10	Mahutska.	Bond, No. 7	473	do.	931	24	439	1,061	931				
				Robinson-1	845	12	373	1,128					
				Robinson-3	906	23	433	1,067	929				
				Robinson-1	933	36	376	1,125					
11	Mahutska.	Bond, No. 9	488	Robinson-1	923	31	435	1,065					
				Robinson-3	900	12	402	1,098					
				Robinson-1	926	24	438	1,062			160	Gas, 931 feet. Quit in sand	
				Robinson-3	926	24	438	1,062			160	Gas, 931 feet. Quit in sand	
12	Mahutska.	Bond, No. 8	488	do.	931	24	439	1,061	931				
				Robinson-1	845	12	373	1,128					
				Robinson-3	906	23	433	1,067	929				
				Robinson-1	933	36	376	1,125					
13	Mahutska.	Bond, No. 1	492	Robinson-1	923	31	435	1,065					
				Robinson-3	900	12	402	1,098					
				Robinson-1	926	24	438	1,062			160	Gas, 931 feet. Quit in sand	
				Robinson-3	926	24	438	1,062			160	Gas, 931 feet. Quit in sand	

2	Mahutska.	476	Stray	332	10	356	1,144	957		
	Bond, No. 15.	476	Robinson-3	924	26	448	1,032			Gas, 850 feet.
3	Mahutska.	479	Robinson-1	850	11	371	1,129			150
	Bond, No. 12.	479	Robinson-3	913	30	434	1,066			
4	Mahutska.	480	Stray	825	21	359	1,141			935
	Bond, No. 14.	480	Robinson-3	902	30	436	1,064			
5	Mahutska.	480	Robinson-1	868	11	388	1,112			160
	Bond, No. 10.	480	Robinson-3	915	33	435	1,065			
6	Mahutska.	478	Robinson-1	851	33	378	1,122			160
	Bond, No. 11.	478	Robinson-3	913	32	440	1,060			920
7	Red Bank.	461	do.	926	5	464	1,036			975
	Littlejohn, No. 1.	478	Robinson-1	860	5	392	1,118			Dry
8	Ohio.	478	Robinson-3	927	27	449	1,051			50
	Littlejohn, No. 3.	478	Robinson-1	877	23	441	1,059			Gas, 832 feet.
9	Ohio.	476	do.	917	23	417	1,092			939
	Littlejohn, No. 1.	479	Robinson-1	887	12	408	1,104			250
10	Mahutska.	479	do.	876	16	396	1,104			
	Mitchell, No. 10.	479	Robinson-2	850	17	376	1,124			Gas, 850 feet.
11	Mahutska.	474	Robinson-1	900	41	426	1,074			250
	Mitchell, No. 8.	474	Robinson-2	835	36	411	1,139			250
12	Mahutska.	474	Robinson-1	885	36	411	1,089			250
	Mitchell, No. 9.	474	Robinson-2	851	6	372	1,128			250
13	Mahutska.	479	Robinson-1	907	42	428	1,072			Gas, 846 feet.
	Mitchell, No. 7.	479	Robinson-2	846	11	367	1,133			250
14	Mahutska.	479	Robinson-1	891	41	412	1,088			Gas, 850 feet.
	Mitchell, No. 1.	479	Robinson-2	850	12	368	1,132			250
15	Mahutska.	482	Robinson-1	902	33	420	1,080			
	Mitchell, No. 2.	482	Robinson-2	841	4	363	1,137			
16	Mahutska.	478	Robinson-1	904	42	426	1,074			
	Mitchell, No. 12.	478	Robinson-2	823	36	346	1,154			Gas, 860 feet.
17	Mahutska.	477	Stray	904	33	427	1,073			
	Mitchell, No. 11.	477	Robinson-2	860	10	363	1,117			
18	Mahutska.	477	Robinson-1	898	26	421	1,079			
	Mitchell, No. 5.	477	Robinson-2	858	12	382	1,118			
19	Mahutska.	476	Robinson-1	917	35	441	1,069			
	Mitchell, No. 4.	476	Robinson-3	901	11	385	1,115			
20	Mahutska.	476	Robinson-1	912	52	436	1,064			
	Mitchell, No. 3.	476	Robinson-3	830	10	353	1,147			
21	Mahutska.	477	Stray	912	46	435	1,065			962
	Mitchell, No. 6.	477	Robinson-3	920	42	446	1,054			
22	Mahutska.	474	do.	876	4	401	1,099			973
	Siler, No. 1.	474	Robinson-1	945	26	470	1,030			949
23	Mefford.	475	Robinson-3	853	38	375	1,125			
	Siler, No. 2.	475	Stray	904	17	426	1,074			
24	Mefford.	478	Robinson-1	888	17	430	1,070			
	Siler, No. 3.	478	do.	888	17	430	1,070			Dry
25	Mefford.	458	Robinson-4	1,012	6	555	945			
	Siler, No. 4.	458	Robinson-1	842	13	373	1,127			
26	Mefford.	480	Robinson-1	875	13	406	1,094			917
	Siler, No. 5.	480	Robinson-1	851	22	377	1,123			
27	Mefford.	474	Stray	888	12	414	1,086			
	Siler, No. 6.	474	Robinson-1	888	12	414	1,086			
28	Mefford.	466	do.	880		414	1,086			886
	Haskins, No. 1.	466	do.	880		414	1,086			
29	Ohio.	465	Stray	839	17	374	1,126			2
	Haskins, No. 2.	465	Stray	839	17	374	1,126			Gas, 880 feet, salt water, 800 feet.
										30
										Gas, 840 feet.

**N. W.:**

## Crawford County—Oblong Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
16— N. E. W.	9	Ohio.....	Haskins, No. 4.....	450	814	18	384	1,126	818			200	Gas, 815 feet.
	10	Ohio.....	Haskins, No. 3.....	445	820	12	375	1,126	824			30	Gas, 821 feet.
	1	Treat, Crawford & Treat.....	Connett, No. 3.....	457	840	30	383	1,117				100	
	2	Treat, Crawford & Treat.....	Connett, No. 4.....	457	836		378	1,122		1,020	10		
	3	Treat, Crawford & Treat.....	Connett, No. 5.....	465	847	6	392	1,118					
	4	Treat, Crawford & Treat.....	Robinson-1.....	468	879		411	1,089					
	4	Treat, Crawford & Treat.....	Connett, No. 1.....	468	879		411	1,089					
	5	Treat, Crawford & Treat.....	Connett, No. 2.....	469	1,082		594	906		1082	Dry		
	5	Treat, Crawford & Treat.....	Connett, No. 2.....	469	899		430	1,070			Dry		
	6	Featzer & Copeland.....	Good, No. 5.....	472	871	7	399	1,101					
	6	Featzer & Copeland.....	Good, No. 5.....	472	900	15	428	1,072	945				
	7	Featzer & Copeland.....	Good, No. 2.....	472	922	32	450	1,050	930				Salt water, 946 feet.
	8	Featzer & Copeland.....	Good, No. 1.....	468	942	19	474	1,026	945				Salt water, 950 feet.
	9	Featzer & Copeland.....	Good, No. 4.....	472	942	19	474	1,026	945				Salt water, 954 feet.
	10	Featzer & Copeland.....	Good, No. 3.....	467	927	26	455	1,045	935				Salt water, 950 feet.
S. E.	11	Treat, Crawford & Treat.....	J. Good, No. 9.....	469	932	18	465	1,036	908			50	
	12	Treat, Crawford & Treat.....	J. Good, No. 12.....	471	905	33	438	1,064	943			50	
	13	Treat, Crawford & Treat.....	J. Good, No. 11.....	468	900	73	419	1,081	943			50	
	13	Treat, Crawford & Treat.....	J. Good, No. 11.....	468	922	54	434	1,056	932			150	
	14	Treat, Crawford & Treat.....	J. Good, No. 13.....	468	917	18	449	1,051				100	Salt water. No sands above.
	15	Ohio.....	R. Good, No. 1.....	462	978		511	989			Dry		
	1	Treat, Crawford & Treat.....	J. Good, No. 10.....	465	900	42	435	1,065	910			300	
	2	Treat, Crawford & Treat.....	J. Good, No. 7.....	465	891	53	428	1,074	905			50	
	3	Treat, Crawford & Treat.....	J. Good, No. 4.....	469	891	35	423	1,078					
	3	Treat, Crawford & Treat.....	J. Good, No. 4.....	469	912	35	443	1,037	912			100	
	4	Bruner.....	Dewey, No. 6.....	470	895	38	426	1,071	899	941			
	5	Bruner.....	Dewey, No. 7.....	473	894	46	431	1,079	897	947			
	6	Bruner.....	Dewey, No. 8.....	476	821	36	346	1,154					
	7	Bruner.....	Dewey, No. 2.....	461	881	39	408	1,094	885				
	7	Bruner.....	Dewey, No. 3.....	464	881	39	408	1,094	884				

S. W.	12	Treat, Crawford & Treat.	Blrch, No. 12.	496	Robinson-1	986	39	400	1,001	919	50	.....
	13	Treat, Crawford & Treat.	Blrch, No. 13.	493	Robinson-2	913	16	417	1,083	919	50	.....
	14	Red Bank.	E. Miller, No. 1 "B"	499	Robinson-3	980	33	432	1,113	926	100	.....
	15	Wabash.	E. Miller, No. 1.	500	Robinson-1	980	28	432	1,066	926	400	.....
	16	Wabash.	E. Miller, No. 2.	495	Robinson-2	912	28	413	1,087	.....	.....	.....
	17	Wabash.	E. Miller, No. 3.	498	Robinson-1	981	20	430	1,119	.....	.....	.....
	18	Red Bank.	E. Miller, No. 1 "RB"	496	Robinson-2	980	20	430	1,070	.....	.....	.....
	19	Ohio.	E. Miller, No. 1.	498	do	983	58	436	1,102	.....	.....	.....
	20	Ohio.	E. Miller, No. 2.	496	do	980	30	438	1,094	.....	.....	.....
	21	Ohio.	E. Miller, No. 4.	495	do	984	26	436	1,074	.....	.....	.....
	22	Ohio.	E. Miller, No. 6.	498	Robinson-2	984	38	430	1,150	.....	.....	.....
	23	Ohio.	E. Miller, No. 7.	499	Robinson-1	984	41	439	1,101	.....	.....	.....
	24	Mahutsaka.	E. Miller, No. 10.	500	do	985	19	436	1,114	916	916	.....
	25	Mahutsaka.	P. Miller, No. 6.	495	do	986	32	435	1,133	.....	.....	.....
	26	Mahutsaka.	P. Miller, No. 3.	496	Robinson-1	985	26	401	1,090	924	200	Gas, 924 feet.
	27	Mahutsaka.	P. Miller, No. 1.	499	Robinson-2	987	36	462	1,038	967	200	.....
	28	Mahutsaka.	P. Miller, No. 11.	499	Robinson-3	970	19	418	1,126	.....	.....	.....
S. E.	1	Red Bank.	J. Taylor, No. 1.	495	Robinson-2	914	21	426	1,074	.....	.....	.....
	2	Red Bank.	J. Taylor, No. 2.	477	Robinson-1	985	24	435	1,117	.....	.....	.....
	3	Ohio.	J. Taylor, No. 1.	487	Robinson-2	982	32	433	1,087	.....	.....	.....
	4	Ohio.	Hamilton, No. 1.	476	Robinson-3	983	6	453	1,047	.....	.....	.....
	5	Ohio.	Hamilton, No. 6.	484	do	987	31	402	1,110	.....	.....	.....
	6	Ohio.	Hamilton, No. 7.	488	Robinson-1	926	35	418	1,082	999	200	Gas, 912 feet.
	7	Ohio.	J. Taylor, No. 6.	490	Robinson-2	922	43	404	1,094	910	60	Gas, 910 feet.
	8	Ohio.	J. Taylor, No. 2.	479	Robinson-3	1,083	32	404	1,084	.....	.....	.....
	1	Ohio.	Hamilton, No. 5.	501	Robinson-1	983	82	450	1,050	.....	.....	.....
	2	Ohio.	Hamilton, No. 4.	508	Robinson-2	983	26	420	1,088	924	120	Gas, 922 feet.
	3	Ohio.	Hamilton, No. 2.	511	Robinson-3	912	5	405	1,094	.....	.....	.....
	4	Ohio.	P. Miller, No. 1.	511	do	981	27	426	1,075	927	180	Gas, 942 feet.
	5	Ohio.	Hamilton, No. 3.	505	Robinson-2	943	14	430	1,070	950	60	Gas, 948 feet.
	6	Ohio.	Hamilton, No. 8.	504	Robinson-3	1,001	20	494	1,094	.....	.....	.....
	7	Ohio.	Hamilton, No. 9.	507	Robinson-1	1,100	30	595	1,095	.....	.....	.....
				507	Robinson-2	1,007	5	403	1,097	1,214	Dry	Salt water, 1,001 feet.
					Robinson-3	917	40	413	1,087	924	200	Gas, 922 feet.
						912	2	404	1,084	.....	.....	.....
						928	38	418	1,088	926	250	Gas, 928 feet.

## Crawford County—Obion Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur- face ele- vation — feet	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
15— N. W...	9	Ohio.....	Mann, No. 12.....	487	Robinson-3.....	927	.....	440	1,060	986	50	Gas, 930 feet.....
	10	Ohio.....	Mann, No. 13.....	482	do.....	926	.....	442	1,058	930	50	Gas, 927 feet.....
	11	Ohio.....	Mann, No. 25.....	492	do.....	940	.....	448	1,052	960	80	Gas, 945 feet.....
	12	Ohio.....	Mann, No. 24.....	494	do.....	926	55	446	1,054	946	100	Gas, 946 feet.....
	13	Ohio.....	Mann, No. 11.....	482	do.....	926	29	444	1,056	940	60	Gas, 930 feet.....
	14	Ohio.....	Mann, No. 14.....	482	Robinson-2.....	910	45	426	1,072	920	80	Gas, 912 feet.....
	15	Ohio.....	Mann, No. 23.....	467	do.....	898	22	431	1,099	910	120	Gas, 902 feet.....
	16	Ohio.....	Ricker, No. 8.....	483	Robinson-1.....	927	26	386	1,114	876	.....	Gas, 870 feet.....
	17	Ohio.....	Ricker, No. 7.....	480	Robinson-3.....	863	37	383	1,117	.....	.....	.....
	18	Ohio.....	Ricker, No. 2.....	480	Robinson-3.....	931	32	451	1,049	966	.....	.....
	19	Ohio.....	Ricker, No. 5.....	480	Robinson-2.....	916	36	436	1,064	964	.....	.....
	20	Ohio.....	Ricker, No. 9.....	482	do.....	912	.....	432	1,068	960	.....	.....
	21	Ohio.....	Ricker, No. 3.....	482	Robinson-1.....	857	25	375	1,125	917	.....	Gas, 917 feet.....
	22	Ohio.....	Ricker, No. 4.....	482	Robinson-2.....	912	46	430	1,070	.....	.....	.....
	23	Ohio.....	Ricker, No. 6.....	481	Robinson-3.....	911	38	429	1,071	960	.....	.....
	24	Ohio.....	Ricker, No. 1.....	480	Robinson-1.....	931	39	449	1,051	931	.....	.....
	25	Red Bank.....	Ricker, No. 2 "R B".....	480	Robinson-2.....	857	35	376	1,124	919	.....	Gas, 919 feet.....
	26	Ohio.....	Ricker, No. 3 "R B".....	481	Robinson-1.....	855	10	375	1,125	.....	.....	.....
	27	Wabash.....	Ricker, No. 2.....	486	Robinson-2.....	916	26	436	1,064	963	25	.....
	28	Red Bank.....	Ricker, No. 2 "B".....	486	Robinson-3.....	922	19	442	1,058	.....	30	.....
	29	Red Bank.....	Ricker, No. 3 "B".....	486	Robinson-1.....	860	.....	379	1,121	.....	.....	.....
	30	Wabash.....	Ricker, No. 3.....	484	Robinson-2.....	913	36	423	1,078	.....	.....	.....
	31	Red Bank.....	Ricker, No. 4 "R B".....	485	do.....	921	31	434	1,065	.....	.....	.....
					Robinson-1.....	862	.....	376	1,134	.....	.....	.....
					Robinson-2.....	921	.....	435	1,065	.....	.....	.....
					Robinson-3.....	927	.....	443	1,037	.....	.....	.....
					Robinson-1.....	872	74	387	1,118	918	50	.....

S. W...	32 Red Bank	Ricker, No. 1 "R B"	484	865	10	381	1,119	970	110	
	33 Wabash	Ricker, No. 1	485	919	17	424	1,066			
	34 Red Bank	Ricker, No. 1 "B"	486	928	25	440	1,000			
	1 Lee	Basom, No. 1	487	927	25	442	1,058			
	2 Lee	Basom, No. 6	478	855	55	407	1,063	855		
	3 Lee	Basom, No. 9	480	933	32	455	1,045			
	4 Lee	Basom, No. 3	480	921	20	428	1,072			
	5 Lee	Basom, No. 8	480	858	20	441	1,059			
	6 Lee	Basom, No. 10	475	847	13	416	1,094	943		
	7 Lee	Basom, No. 4	478	915	19	474	1,026			
	8 Lee	Basom, No. 2	467	902	25	434	1,076			
	9 Lee	Basom, No. 7	468	902	25	434	1,076			
	10 Lee	Basom, No. 5	481	887	51	419	1,081	887		
	11 Benedum-Trees	Siler, No. 4	477	887	50	406	1,094			
	12 Lee	Siler, No. 11	475	882	46	405	1,066	894		Gas, 886 feet. Quit in sand.
S. E...	13 Lee	Siler, No. 1	467	880		409	1,091			Gas, 864 feet.
	14 North Fork	School House lot	467	890	30	423	1,077	895		Gas, 884 feet. Quit in sand.
	15 Benedum-Trees	Siler, No. 3	466	880		414	1,086	890		Quit in sand. Gas, 885 feet. Quit in sand.
	16 Benedum-Trees	Siler, No. 2	466	822	32	353	647			
	17 McArthur	Weirick, No. 3	454	873	50	404	1,090	873		Quit in sand.
	18 McArthur	Weirick, No. 2	454	880	55	396	1,104			do.
	19 McArthur	Weirick, No. 1	496	867	56	426	1,074	885		
	20 McArthur	Weirick, No. 6	487	860	45	411	1,080			
	21 McArthur	Weirick, No. 5	455	860	45	373	1,127	920		
	22 McArthur	Weirick, No. 4	470	873	45	405	1,055	917		
	23 Ohio	Mann, No. 5	475	870		395	1,105	882		Gas, 874 feet.
	24 Ohio	Mann, No. 6	460	860		400	1,100	862		50 Gas, 862 feet.
	25 Ohio	Mann, No. 7	480	884		404	1,090	892		300 Gas, 884 feet.
	26 Ohio	Mann, No. 16	465	873	47	408	1,062	900		100 Gas, 880 feet.
	27 Ohio	Mann, No. 20	463	829	8	387	1,133			120 Gas, 872 feet.
	28 Ohio	Mann, No. 8	485	868	42	406	1,064	876		
	29 Ohio	Mann, No. 9	473	864		419	1,081	916		100 Gas, 890 feet.
	30 Ohio	Mann, No. 17	463	864	10	415	1,095	896		
	31 Ohio	Mann, No. 22	463	868	32	426	1,075	894		100 Gas, 890 feet.
	32 Ohio	Mann, No. 10	485	891	30	426	1,072	896		100 Gas, 892 feet.
	33 Ohio	Wakefield, No. 5	488	911		426	1,074	917		60 Gas, 915 feet.
	34 Ohio	Wakefield, No. 2	483	920		437	1,063	923		250 Gas, 900 feet.
	35 Ohio	Wakefield, No. 4	486	887		401	1,099	890		150 Gas, 928 feet.
	4 Ohio	Wakefield, No. 11	483	918	20	435	1,065			10 Gas, 890 feet.
				961	41	478	1,022	920		80 Gas, 923 feet.



## Crawford County—Oblong Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
31—												
S. E...	9	Ohio.....	Wirt, No. 4.....	483	Robinson-1 899	7	407	1,093				
					Robinson-2 890	20	428	1,072				
32—					Robinson-3 923	18	461	1,039			25	
S. W...	1	Kanawha.....	Wood, No. 15.....	489	Robinson-1 912	15	376	1,124				
					Robinson-2 883	9	397	1,103		835		
	2	Kanawha.....	Wood, No. 31.....	496	Robinson-3 918	27	432	1,068				
					Robinson-1 852	25	385	1,135		852		
	3	Kanawha.....	Wood, No. 32.....	487	Robinson-2 903	7	406	1,094				Gas, 852 feet.
					Robinson-3 918	18	431	1,069		943		
	4	Kanawha.....	Wood, No. 14.....	488	Robinson-1 889	29	370	1,130	864			
					Robinson-2 905	10	371	1,083		832		
	5	Kanawha.....	Wood, No. 13.....	484	Robinson-1 904	49	426	1,080		929		
					Robinson-2 893	10	408	1,092	894	917		
	6	Kanawha.....	Wood, No. 12.....	474	do 893		396	1,114				
	7	Kanawha.....	Wood, No. 9.....	477	Robinson-1 873	9	397	1,103		911		
					Robinson-2 885	15	381	1,115	875	833		
	8	Kanawha.....	Wood, No. 7.....	480	Robinson-1 846		385	1,138	860			
					do 846		382	1,139				
	9	Kanawha.....	Wood, No. 6.....	484	Robinson-2 893	42	370	1,130		919		
					Robinson-1 910		424	1,086				
	10	Kanawha.....	Wood, No. 5.....	485	Robinson-3 879	17	383	1,113	877	944		
					Robinson-1 901		385	1,083				
S. E...	11	Kanawha.....	Wood, No. 10.....	487	Robinson-2 891		342	1,168	828	938		Well abandoned.
		American Oil and Devel- opment Co.....	Short, No. 1.....	483	Robinson-1 825		380	1,110	873	920		Shale gas, 600 feet.
					Robinson-2 873							
	2	American Oil and Devel- opment Co.....	Short, No. 21.....	488	Robinson-1 893	57	375	1,125	881	962		Shale gas, 670 feet.
					do 813	7	326	1,174				
	3	American Oil and Devel- opment Co.....	Short, No. 20.....	487	Robinson-1 888	5	348	1,152				
					Robinson-2 903	17	416	1,084		942		Salt water.

4	American Oil and Devel- opment Co.	Short, No. 19	486	Robinson-1	842	14	356	1,144	845	230	Salt water.
				Robinson-2	868		5	412	1,088		
				Robinson-3	923		8	437	1,083	935	
5	American Oil and Devel- opment Co.	Short, No. 2	478	Robinson-1	829		19	351	1,149	833	
				Robinson-2	868		18	390	1,110		
				Robinson-4	955		4	477	1,023		Salt water.
6	American Oil and Devel- opment Co.	Short, No. 18	487	Robinson-1	830			343	1,157		
				Robinson-3	925		6	438	1,062	990	Dry
7	American Oil and Devel- opment Co.	Short, No. 17	489	Robinson-1	858		32	399	1,131	885	200
8	American Oil and Devel- opment Co.	Short, No. 23	484	do.	819		10	335	1,165		
				Robinson-2	904		8	420	1,080		100
				Robinson-1	815		12	347	1,153		
9	American Oil and Devel- opment Co.	Short, No. 3	468	Robinson-2	857		15	399	1,111		
				Robinson-3	906			438	1,062	934	
10	American Oil and Devel- opment Co.	Short, No. 24	489								No record.
11	American Oil and Devel- opment Co.	Short, No. 5	468	Robinson-1	810		10	342	1,158		
		Railway right of way	489	Robinson-2	830		5	362	1,138		Dry
12		do.	490								No record.
13		do.	478								do.
14		do.									do.
15	American Oil and Devel- opment Co.	Wall, No. 1	483	Robinson-1	860		21	377	1,123	862	Shale gas, 585 and 750 feet
16	American Oil and Devel- opment Co.	Wall, No. 16	488	do.	862		15	374	1,126	863	50
17	American Oil and Devel- opment Co.	Wall, No. 12	488	do.	870		23	382	1,118	872	Shale gas, 670 feet.
18	American Oil and Devel- opment Co.	Wall, No. 11	481	do.	845		2	364	1,136		Shale gas, 605 feet.
				Robinson-3	906		23	425	1,075	912	50
19	American Oil and Devel- opment Co.	Wall, No. 10	482	Robinson-1	833		24	351	1,149		Shale, gas, 690 feet.
				Robinson-3	912		20	430	1,070		
20	American Oil and Devel- opment Co.	Wall, No. 13	485	Robinson-1	870		25	385	1,115		Salt water, 885 feet.
				Robinson-3	912		22	427	1,073	917	75 Shale gas, 650 feet.
21	American Oil and Devel- opment Co.	Wall, No. 2	478	do.	904		19	426	1,074	907	Shale gas, 670 feet.
22	American Oil and Devel- opment Co.	Wall, No. 9	489	Robinson-1	878		5	399	1,111		Shale gas, 625 feet.
				Robinson-2	904		20	415	1,065	909	75
23	American Oil and Devel- opment Co.	Wall, No. 3	485	Robinson-1	863		32	378	1,122		
				Robinson-3	925		17	440	1,060	926	50
24	American Oil and Devel- opment Co.	Wall, No. 8	488	do.	875		41	387	1,113	975	400

## Crawford County—Oblong Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur- face ele- va- tion— feet.	Sand				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.				
15— S. E...	5	Ohio.....	Wakefield, No. 6.....	488	Robinson-2	928		440	1,060	938	50	Gas, 933 feet.
	6	Ohio.....	Wakefield, No. 8.....	490	Stray	817		327	1,173			
					Robinson-2	920		430	1,070		40	Gas, 920 feet.
	7	Ohio.....	Wakefield, No. 12.....	480	Robinson-2	900	2	388	1,112			
					Robinson-2	900	38	420	1,080	916	150	Gas, 904 feet.
	8	Ohio.....	Wakefield, No. 7.....	486	Robinson-1	884		398	1,102		Dry	
	9	Ohio.....	Wakefield, No. 13.....	489	Robinson-2	919	20	430	1,070	926	60	Gas, 924 feet.
	10	Ohio.....	Wakefield, No. 10.....	465	Robinson-3	907	24	442	1,058	916	100	Gas, 912 feet.
	11	Ohio.....	Wakefield, No. 9.....	460	do.	906	28	440	1,060	913	40	Gas, 913 feet.
	12	Ohio.....	Wakefield, No. 1.....	490	Robinson-1	887		407	1,063	907	20	
	13	Ohio.....	Wakefield, No. 3.....	487	do.	903		416	1,064	908	30	
	14	Ohio.....	Reed, No. 5.....	496	Robinson-1	884		398	1,102	896		
	15	Ohio.....	Reed, No. 6.....	493	Robinson-3	941		468	1,032	964	2	
	16	Ohio.....	Reed, No. 1.....	490	Robinson-3	944		448	1,052	946	20	Gas, 944 feet.
	17	Ohio.....	Reed, No. 2.....	490	Robinson-1	887		397	1,103	893	400	
	18	Ohio.....	Reed, No. 3.....	490	do.	900		410	1,090	905	20	
					do.	907		417	1,083	918	2	
	19	Red Bank.....	Martin, No. 8.....	486	Stray	856	14	368	1,132			
					Robinson-1	906	10	418	1,082		Dry	
	20	Red Bank.....	Martin, No. 2.....	485	do.	890	48	405	1,085	905	25	
					Stray	876	15	389	1,111			
					Robinson-1	910	5	423	1,077			
	21	Red Bank.....	Martin, No. 9.....	487	Robinson-2	935		448	1,052			
					Robinson-3	880	6	463	1,007			
					Robinson-4	1,013	10	526	974			
	22	Red Bank.....	Martin, No. 4.....	486	Robinson-3	1,022	30	605	886		Dry	
					Robinson-3	940	25	454	1,046		100	
16— N. E....					Robinson-1	886		404	1,086			
	1	Mahtaka.....	Bond, No. 13.....	481	Robinson-2	906	13	424	1,076			
					Robinson-3	940	17	459	1,041		160	



## Crawford County—Oblong Township—Concluded.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.	
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.					
35—S. W.	1	Ohio	Firebaugh, No. 4.	512	Robinson-1.	927	18	415	1,085	930		15	Gas, 930 feet.	
	2	Ohio	Firebaugh, No. 3.	509	do.	931	10	422	1,078	905		10	Gas, 935 feet.	
	3	Ohio	Firebaugh, No. 2.	509	Robinson-2.	946	13	437	1,063	960		12	Gas, 960 feet. Salt water, 975 feet.	
	4	Ohio	Firebaugh, No. 8.	502	Robinson-1.	923	10	421	1,079	930		75	Gas, 925 feet.	
	5	Ohio	Firebaugh, No. 7.	503	do.	920	15	417	1,083	925		5	Gas, 925 feet. Salt water, 943 feet.	
S. E.	6	Ohio	Firebaugh, No. 13.	502	Robinson-3.	960	15	458	1,042	970		100	No record.	
	1	Ohio	Warnock, No. 3.	501						875		do		
	2	Ohio	Warnock, No. 4.	499						960		25	Gas, 950 feet.	
	3	Ohio	Warnock, No. 7.	516	Robinson-2.	950	18	434	1,066	960		30	Gas, 941 feet.	
	4	Ohio	Warnock, No. 8.	514	do.	941	15	427	1,073	945		do		
	5	Ohio	Warnock, No. 2.	490						886		No record.		
	6	Ohio	Warnock, No. 1.	504						918		do		
	7	Ohio	McLain, No. 2.	488						928		do		
	8	Ohio	McLain, No. 1.	490						870		do		
	9	Ohio	McLain, No. 4.	507						910		do		
	10	Ohio	McLain, No. 3.	511	Stray	870			383	1,118	935		do	
	11	Bailey & Fritz.	Beeman, No. 2.	488	Robinson-1.	908	14	420	1,080				Salt water, 932 feet.	
	12	Boles.	Grievess, No. 1.	504	do.	923	23	419	1,081	945	932		40	Gas, 923 feet.
	13	Boles.	McLain, No. 3.	513	Stray	890			377	1,123				
	14	Boles.		Robinson-1.	938	27	423	1,077				100		Well abandoned
				Stray	885			372	1,128					
				Robinson-2.	955	66	443	1,058					15	5,000,000, cubic feet gas daily.
15	Boles.		McLain, No. 2.	507	Stray	865			378	1,122				
16	Gillespie.		Robinson-1.	932	38	426	1,075				100		Gas, 877 feet.	
			Stray	873	49	369	1,131							
17	Gillespie.		Barnes, No. 2.	504	Robinson-1.	890	26	426	1,074					
			Stray	878	50	369	1,131						Gas, 896 feet.	
			Barnes, No. 3.	509	Robinson-1.	938	18	420	1,071					

[illegible]

17-N.E..

**N. W.:**



7	Campbell Bros.	Murphy, No. 3.	463	Robinson-1 (T)	851	51	338	1,112	905	No record.
8	Campbell Bros.	Murphy, No. 2.	463	do.	890	35	338	1,105	920	No record.
9	Campbell Bros.	Murphy, No. 6.	465	Robinson-1 (T)	836	57	371	1,129	883	No record.
10	Campbell Bros.	Murphy, No. 7.	465	do.	835	55	338	1,132	894	No record.
11	Campbell Bros.	Murphy, No. 8.	467	Robinson-1	879	...	431	1,069	890	No record.
12	Campbell Bros.	Murphy, No. 1.	463	Robinson-1	890	...	433	1,067	...	2 Salt water, 980 feet. Well abandoned.
13	Campbell Bros.	McCaplin, No. 4.	448	do.	890	...	442	1,058	892	75 Gas, 885 feet. Salt water, 900 feet.
14	Ohio.	McCaplin, No. 3.	447	do.	897	...	449	1,051	900	100 Gas, 900 feet. Well abandoned.
15	Ohio.	McCaplin, No. 1.	448	do.	927	...	479	1,021	...	Light Gas, 900 feet. Well abandoned.
16	Ohio.	McCaplin, No. 2.	448	Robinson-3	927	...	592	908	1,040	Salt water, 927 feet.
17	Ohio.	McCaplin, No. 5.	448	Robinson-4	1,040	...	...	...	...	Dry Salt water.
18	Ohio.	McCaplin, No. 5.	448	Robinson-4	1,040	...	...	...	...	Dry Salt water.
1	Red Bank.	Dedrick, No. 5.	476	Robinson-2	945	14	469	1,031	955	20
2	Red Bank.	Dedrick, No. 4.	478	Robinson-3	958	18	490	1,020	964	20
3	Red Bank.	Dedrick, No. 1.	478	Robinson-2	947	14	469	1,031	949	40
4	Red Bank.	Dedrick, No. 2.	472	Robinson-3	947	16	475	1,025	...	10
5	Red Bank.	Dedrick, No. 6.	476	Robinson-2	942	12	466	1,034	...	50
6	Red Bank.	Dedrick, No. 3.	476	do.	941	38	466	1,034	...	100
7	Morrison.	Perkins, No. 1.	478	Stray	840	...	362	1,138	...	15
8	Morrison.	Perkins, No. 2.	476	Robinson-3	970	20	492	1,008	975	70
9	Morrison.	Perkins, No. 3.	476	do.	970	27	494	1,006	977	70
10	Morrison.	Perkins, No. 6.	476	do.	958	34	482	1,018	981	100
11	Morrison.	Perkins, No. 4.	474	do.	963	21	508	992	...	18
12	Morrison.	Perkins, No. 5.	475	do.	963	22	499	1,011	965	70
13	Ohio.	Dedrick, No. 5.	476	do.	971	29	496	1,004	...	20
14	Ohio.	Dedrick, No. 4.	476	do.	968	8	512	988	906	35
15	Ohio.	Dedrick, No. 3.	474	Robinson-2	960	35	476	1,024	985	130
16	Ohio.	Dedrick, No. 6.	472	Robinson-3	965	55	513	967	985	55
1	Ohio.	Caywood, No. 1.	474	do.	990	18	518	982	900	1,014
2	Ohio.	Caywood, No. 1.	474	do.	1,230	...	756	744	...	Dry No record.
1	Ohio.	Reade, No. 1.	472	do.	1,315	...	843	657	...	Dry Salt water, 1,200 feet. No upper sands.
1	Anchor & Seibert.	Schoel House Lot.	473	Robinson-3	996	9	524	976	1,010	Dry No upper sands. Salt water, 1,315 feet.
2	Ohio.	Coyley, No. 2.	469	Robinson-4	1,037	...	568	832	...	Dry No upper sands.
3	Morrison.	Dedrick, No. 1.	470	do.	...	...	...	...	...	No record.
1	Ohio.	Wirt, No. 1.	465	Robinson-3	830	10	465	1,035	930	60
2	Ohio.	Wirt, No. 2.	464	Robinson-1	865	12	401	1,099	865	...
3	Unknown.	Wirt, No. 1.	466	Robinson-4	866	9	400	1,100	...	...
4	Red Bank.	Wirt, No. 3.	468	Robinson-4	870	13	504	996	...	...
5	Red Bank.	Wirt, No. 4.	463	Robinson-3	929	46	442	1,058	...	75 Dry No sands, all shale.
6	Red Bank.	Wirt, No. 1.	487	Robinson-3	890	28	466	1,094	871	Dry
7	Red Bank.	Wirt, No. 2.	463	Robinson-1	890	28	466	1,094	871	200
8	Ohio.	Wirt, No. 3.	463	Stray	849	14	387	1,113	849	150

8- E...

N. W.

S. W.

• S. E...

31- S. E...



## Crawford County—Oblong Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face ele-va-tion—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
31—												
S. E.	9	Ohio.....	Wirt, No. 4.....	463	Robinson-1.....	869	7	407	1,083			
					Robinson-2.....	860	20	428	1,072		25	
32—					Robinson-3.....	923	18	461	1,059			
S. W.	1	Kanawha.....	Wood, No. 15.....	489	Robinson-1.....	865	15	378	1,124	935		
	2	Kanawha.....	Wood, No. 31.....	486	Robinson-1.....	912	9	423	1,077			
					Robinson-3.....	863	27	397	1,103			
	3	Kanawha.....	Wood, No. 32.....	487	Robinson-1.....	918	25	432	1,069	932		Gas, 852 feet.
					Robinson-2.....	852	25	365	1,135			
					Robinson-3.....	863	7	408	1,094			
	4	Kanawha.....	Wood, No. 14.....	488	Robinson-1.....	918	18	431	1,069	943		
					Robinson-2.....	868	29	370	1,130	884		
	5	Kanawha.....	Wood, No. 13.....	484	Robinson-1.....	905	10	417	1,083	932		
	6	Kanawha.....	Wood, No. 12.....	474	Robinson-2.....	858	10	374	1,126	929		
	7	Kanawha.....	Wood, No. 9.....	477	do.....	904	420	1,080	884	917		
	8	Kanawha.....	Wood, No. 7.....	480	Robinson-1.....	863	9	408	1,092			
	9	Kanawha.....	Wood, No. 6.....	484	Robinson-2.....	874	15	397	1,103	911		
					do.....	865	15	385	1,115	933		
	10	Kanawha.....	Wood, No. 5.....	485	Robinson-1.....	846	42	362	1,138	860		
					Robinson-2.....	903	42	419	1,081	919		
	11	Kanawha.....	Wood, No. 10.....	487	Robinson-3.....	855	42	370	1,130	944		
S. E.	1	American Oil and Development Co.....	Short, No. 1.....	483	Robinson-1.....	872	17	385	1,115	877		Well abandoned.
	2	American Oil and Development Co.....	Short, No. 21.....	488	Robinson-1.....	901	414	1,086		938		Shale gas, 650 feet.
	3	American Oil and Development Co.....	Short, No. 20.....	487	Robinson-2.....	825	825	342	1,158	828		Shale gas, 670 feet.
					Robinson-1.....	873	5	390	1,110	920		
					Robinson-2.....	863	57	375	1,125	881		
					Stray Robinson-1.....	813	7	336	1,174			
					Robinson-1.....	835	5	348	1,153			
					Robinson-2.....	903	17	416	1,084	942		Salt water.

4	American Oil and Devel- opment Co.	Short, No. 19.	486	Robinson-1	842	14	356	1,144	846	230	Salt water.
				Robinson-2	898	5	412	1,088			
				Robinson-3	923	8	437	1,083	935		
5	American Oil and Devel- opment Co.	Short, No. 2.	478	Robinson-1	839	19	351	1,149	833		
				Robinson-2	868	18	350	1,110			
				Robinson-4	945	4	477	1,023			Salt water.
6	American Oil and Devel- opment Co.	Short, No. 18.	487	Robinson-1	880		343	1,157			
				Robinson-3	925	5	438	1,062	990	Dry	
7	American Oil and Devel- opment Co.	Short, No. 17.	489	Robinson-1	859	32	369	1,131	895	200	
8	American Oil and Devel- opment Co.	Short, No. 23.	484	do.	819	10	335	1,165			
				Robinson-2	904	8	420	1,080		100	
9	American Oil and Devel- opment Co.	Short, No. 3.	468	Robinson-1	815	12	347	1,153			
				Robinson-2	857	15	389	1,111			
				Robinson-3	906		438	1,062	934		
10	American Oil and Devel- opment Co.	Short, No. 24.	489							No record.	
11	American Oil and Devel- opment Co.	Short, No. 5.	463	Robinson-1	810	10	342	1,156			
		Railway right of way.	489	Robinson-2	830	5	362	1,138		Dry	
12		do.	490							No record.	
13		do.	478							do.	
14		do.								do.	
15	American Oil and Devel- opment Co.	Wall, No. 1.	483	Robinson-1	860	21	377	1,123	862		Shale gas, 585 and 750 feet
16	American Oil and Devel- opment Co.	Wall, No. 16.	488	do.	862	15	374	1,126	863	50	
17	American Oil and Devel- opment Co.	Wall, No. 12.	488	do.	870	23	382	1,118	872		Shale gas, 670 feet.
18	American Oil and Devel- opment Co.	Wall, No. 11.	481	do.	845	2	364	1,136			Shale gas, 605 feet.
				Robinson-3	906	23	425	1,075	912	50	
19	American Oil and Devel- opment Co.	Wall, No. 10.	482	Robinson-1	833	24	351	1,149			Shale, gas, 600 feet.
				Robinson-3	912	30	430	1,070			
20	American Oil and Devel- opment Co.	Wall, No. 13.	485	Robinson-1	870	25	385	1,115			Salt water, 885 feet.
				Robinson-3	912	22	477	1,073	917	75	Shale gas, 650 feet.
21	American Oil and Devel- opment Co.	Wall, No. 2.	478	do.	904	19	426	1,074	907	928	Shale gas, 670 feet.
22	American Oil and Devel- opment Co.	Wall, No. 9.	489	Robinson-1	878	5	389	1,111			Shale gas, 625 feet.
				Robinson-2	904	20	415	1,065	909	929	
23	American Oil and Devel- opment Co.	Wall, No. 3.	485	Robinson-1	863	32	378	1,122			
				Robinson-3	925	17	440	1,060	926	943	50
24	American Oil and Devel- opment Co.	Wall, No. 8.	488	do.	875	41	387	1,113	975	939	400

## Crawford County—Oblong Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur- face ele- va- tion— feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
32— S. E...	25	American Oil and Devel- opment Co.	Wall, No. 4.	483	Robinson-1..... Robinson-2..... Shallow.....	834 895 770	52 20 29	351 412 282	1,149 1,098 1,218	871 ..... 920	.....	100	
	26	American Oil and Devel- opment Co.	Wall, No. 5.	488	Robinson-1..... Robinson-2.....	836 890	24 15	336 402	1,152 1,098	..... .....	.....	200	
	27	American Oil and Devel- opment Co.	Wall, No. 6.	488	Stray..... Robinson-1.....	830 850	15 45	341 361	1,159 1,139	834 880	935	400	
	28	American Oil and Devel- opment Co.	Wall, No. 7.	487	do..... Robinson-2.....	868 890	15 15	381 403	1,119 1,097	..... .....	930	200	
33— S. W..	29	American Oil and Devel- opment Co.	Wall, No. 17.	483	Robinson-1.....	855	6	372	1,128	948	Dry	No record.	
	1	Fidelity.....	Davidson, No. 7.	482								do.	
	2	Fidelity.....	Davidson, No. 2.	485								do.	
	3	Fidelity.....	Davidson, No. 1.	478								do.	
	4	Fidelity.....	Davidson, No. 6.	486								do.	
	5	Fidelity.....	Davidson, No. 4.	484								do.	
	6	Fidelity.....	Davidson, No. 5.	485								do.	
	7	Fidelity.....	Davidson, No. 3.	488								do.	
	8	Liberty Oil and Gas Co..	Houghton, No. 4.	484	Robinson-1..... do.....	835 825	19 39	351 342	1,149 1,158	843 844	920	300	Shale gas, 615 feet.
	9	Liberty Oil and Gas Co..	Houghton, No. 3.	483	Robinson-3..... Robinson-1..... Robinson-3.....	832 823 910	39 32 6	349 344 431	1,051 1,156 1,099	844 831 836	948	125	Salt water, 864 feet.
	19	Liberty Oil and Gas Co..	Houghton, No. 2.	479								200	
	11	Liberty Oil and Gas Co..	Houghton, No. 12.	486	Robinson-1..... Robinson-2..... ROBINSON-3.....	825 879 927	15 16 7	339 383 441	1,161 1,107 1,059	879 890 930	944	No record.	Shale gas, 600 feet.
12	Liberty Oil and Gas Co..	Houghton, No. 1.	486									Well abandoned because of fresh water.	



## Crawford County—Robinson Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
4—	S. E...	1 White & Cromack...	Parker, No. 1...	519	Shallow	927		408	1,092	950		Dry	Gas, 932 feet Salt water, 945 feet
5—	N. W..	1 Minnetonka...	Wilson, No. 1...	528	Robinson-1.	975		447	1,053	1,200		Dry	
6—	N. E...	1 Fisher...	Randolph, No. 3...	527	Shallow	885	20	358	1,142				
					Robinson-1.	972	12	445	1,055				Salt water, 1,030 feet.
					Robinson-2.	995	35	468	1,032	1,300		Dry	Salt water, 1,300 feet.
						1,265		758	742			Dry	No record.
		2 Fisher...	Henry, No. 4...	525	Robinson-2.	983	23	460	1,040	988			
		3 Fisher...	Henry, No. 3...	523	Stray	900	20	381	1,119				
					Robinson-4.	1,059	6	540	990	1,088		Dry	Salt water, 1,065 feet.
		1 Fisher...	Randolph, No. 1...	519	Robinson-2.	993	7	468	1,032				
					Robinson-3.	1,005	13	480	1,020	1,009		4	
		2 Ohio...	W. Jones, No. 4...	525	Robinson-2.	996	7	462	1,038	986		40	Gas, 986 feet.
					Robinson-3.	993	7	469	1,031				
		3 Ohio...	W. Jones, No. 2...	524	Robinson-3.	1,005	13	479	1,021	894			
					Robinson-2.	984	8	461	1,039				
		4 Ohio...	W. Jones, No. 3...	523	Robinson-4.	1,067	10	557	943			Dry	Salt water.
						1,269		746	754				
					Robinson-2.	990	7	460	1,040				
		5 Ohio...	W. Jones, No. 1...	520	Robinson-2.	1,050	9	530	970	1,050		10	Gas, 995 feet.
					Robinson-3.	993	17	443	1,057				Salt water, 1,099 feet.
		6 Fisher...	Randolph, No. 2...	520	Robinson-3.	996	22	476	1,024				
					Robinson-4.	1,050	22	530	970				
					Stray	902	5	387	1,113	1,204		30	
		7 Fisher...	Henry, No. 1...	515	Robinson-1.	950	30	435	1,065	982		25	Gas, 897 feet (shell).
					Stray	800	30	370	1,130				Gas, 955 feet.
		8 Fisher...	Henry, No. 2...	520	Robinson-3.	998	2	478	1,022	998		35	

9	Red Bank	Cortelyou, No. 1 "B".	519	{ Stray Robinson-1	881 956	16	3621 437 1,063	Gas 20 3,000,000 cubic feet gas. 50	Gas Gas, 926 feet, 3,000,000 cu bic feet gas.
10	Red Bank	Cortelyou, No. 2 "B".	519	{ Stray Robinson-1	873 957	32 15	354 438 1,062	20 3,000,000 cubic feet gas.	
11	Red Bank	Cortelyou, No. 1 "R. B".	520	{ Stray Robinson-2	887 976	15 6	387 450 1,133	Show	
12	Red Bank	Cortelyou, No. 2 "R. B".	522	{ Stray Robinson-2	881 943	6 20	450 441 1,144	50	
13	Ohio	Cortelyou, No. 1.	524	{ Stray Robinson-2	903 903	20 370	441 1,021 912	50	
14	Ohio	Cortelyou, No. 4.	521	{ Robinson-2	906	18	442 1,058	No record.	
15	Ohio	Cortelyou, No. 2.	514	{ Stray Robinson-4	903 1,057	20 10	370 543 1,121	Gas, 883 feet.	
16	Ohio	Cortelyou, No. 3.	517	{ Stray Robinson-3	973 1,013	12	456 1,044	Salt water.	
17	Leeper	Furman, No. 1.	524	{ Stray Robinson-4	1,002 898	15	545 955	No record.	
18	Leeper	Furman, No. 2.	515	{ Robinson-4	898		374 1,126	do.	
19	Leeper	Furman, No. 3.	518	{ Stray	920	10	398 1,102	No record.	
20	Leeper	Furman, No. 4.	522	{ Robinson-1	958	30	436 1,064	No record.	
1	Davis	Dean, No. 1.	514	{ Robinson-2				No record.	
2	Davis	Dean, No. 2.	530	{ Robinson-3	990		468 1,032	Gas, 996 feet.	
3	Leeper	C. Jones, No. 1.	522	{ Robinson-3	1,017		465 1,005	Salt water.	
4	Davis	Dean, No. 2.	530	{ Stray	910	5	380 1,120	Light	
5	Davis	Dean, No. 1.	514	{ do.	900	22	386 1,114	Light	
6	Ohio	G. Jones, No. 1.	525	{ Robinson-3	1,016		491 1,009	Salt water.	
7	Ohio	Griswold, No. 1.	492	{ do.	990	10	498 1,002	Dry Salt water, 1,000 feet.	
8	Unknown	Griswold, No. 1.	498	{ Combs, No. 1.				Dry No record.	
9	Unknown	Combs, No. 1.	505	{ Robinson-1			1,078	Dry do.	
10	Central Oil & Gas Co.	Dean, No. 1.	508	{ do.	905		397 1,108	Gas Gas, 930 feet.	
11	Central Oil & Gas Co.	Dean, No. 2.	508	{ do.	915	10	407 1,063	Light Salt water, 962 feet. Well abandoned.	
12	Ohio	W. Jones, No. 1.	508	{ do.	907		399 1,101	Gas Gas, 933 feet.	
13	Ohio	W. Jones, No. 2.	509	{ do.	912	12	403 1,097	20 Gas, 912 feet.	
14	Ohio	W. Jones, No. 3.	508	{ do.	912		404 1,096	15 Gas, 935 feet.	
15	Superior	Richard, No. 1.	495	{ Robinson-1	916		405 1,065	Dry No record.	
16	Superior	Richard, No. 2.	511	{ Meeserve, No. 1.	916		405 1,065	75 Gas, 918 feet.	
17	Jennings	Meeserve, No. 1.	511	{ Stray	898	6	371 1,129	Dry No record.	
18	Ohio	Wakefield, No. 1.	527	{ Robinson-2	970		443 1,057	Dry Salt water.	
19	Ohio	Wakefield, No. 2.	522	{ Robinson-1	922	30	400 1,100		
20	Ohio	Wakefield, No. 2.	522	{ Robinson-2	959	10	437 1,063		
21	Ohio	Wakefield, No. 2.	522	{ Robinson-3	983		460 1,040		

## Crawford County—Robinson Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
13—	N. W.	2 Ohio.....	Wakefield, No. 3.....	524	Robinson-3.....	995	.....	471	1,029	.....	.....	.....	.....
3	Ohio.....	520	Taylor, No. 5.....	520	do.....	995	15	465	1,035	.....	.....	.....	.....
4	Ohio.....	520	Taylor, No. 3.....	520	Robinson-1.....	930	25	407	1,090	.....	.....	.....	.....
1	Morrison.....	522	Walker, No. 1.....	522	do.....	929	.....	407	1,093	.....	.....	.....	.....
2	Ohio.....	517	Mann, No. 1.....	517	Robinson-2.....	1,233	.....	711	799	.....	.....	.....	.....
16—	N. E.	1 Red Bank.....	Rafferty, No. 1.....	533	Stray.....	910	.....	377	1,123	.....	.....	.....	.....
17—	N. E.	1 Red Bank.....	Stephenson, No. 1.....	510	Robinson-3.....	1,037	.....	504	996	.....	.....	.....	.....
18—	N. E.	1 Red Bank.....	Mann, No. 1.....	520	Robinson-1 (?).....	927	12	417	1,083	.....	.....	.....	.....
31—	S. W.	1 Red Bank.....	Mann, No. 1.....	520	Stray.....	883	.....	363	1,137	.....	.....	.....	.....
S. W.		1 Samuels & Booth.....	F. Burner, No. 5.....	528	Robinson-2.....	972	12	444	1,056	.....	.....	.....	.....
					Robinson-3.....	1,030	15	502	998	.....	.....	.....	.....
2	Samuels & Booth.....	F. Burner, No. 3.....	F. Burner, No. 3.....	528	Robinson-3.....	1,235	.....	707	793	.....	.....	.....	.....
					Robinson-4.....	1,040	20	512	988	.....	.....	.....	.....
3	Unknown.....	529	Ill. Central, No. 1.....	529	Robinson-4.....	1,120	15	592	908	.....	.....	.....	.....
4	Samuels & Booth.....	530	F. Burner, No. 2.....	530	Robinson-3.....	1,020	.....	490	1,010	.....	.....	.....	.....
5	Samuels & Booth.....	530	F. Burner, No. 4.....	530	Robinson-2.....	1,095	42	565	935	.....	.....	.....	.....
6	Samuels & Booth.....	534	F. Burner, No. 1.....	534	Robinson-4.....	990	20	450	1,050	.....	.....	.....	.....
7	Samuels & Booth.....	532	F. Burner, No. 1.....	532	Robinson-4.....	1,107	33	577	923	.....	.....	.....	.....
7	Samuels & Booth.....	F. Burner, No. 1.....	F. Burner, No. 1.....	532	Stray.....	870	20	336	1,164	.....	.....	.....	.....
					Robinson-4.....	1,096	34	562	938	.....	.....	.....	.....
7	Samuels & Booth.....	F. Burner, No. 1.....	F. Burner, No. 1.....	532	Stray.....	888	17	356	1,144	.....	.....	.....	.....
					Robinson-2.....	996	18	454	1,046	.....	.....	.....	.....

8	Samuels & Booth	F. Burner, No. 2	532	Stray	917	385	1,115	978	1,006	Gas, 917 feet. South 40 acres
9	Samuels & Booth	F. Burner, No. 3	529	Robinson-2 Stray	978 9	446 1,054	978 917	1,006	South 40 acres	
10	Vincent	Newlin, No. 9	521	Robinson-1 Stray	983 19	451 1,046	984 1,002	1,002	Gas, 980 feet	
11	Vincent	Newlin, No. 8	522	do	905 25	369 1,131	920 1,006			
12	Vincent	Newlin, No. 5	530	Robinson-4 Stray	1,057 15	548 1,152	920 1,006			
13	Vincent	Newlin, No. 6	529	Robinson-2 Robinson-4	908 1,058	438 1,062	920 1,006			
14	Vincent	Newlin, No. 10	528	do	914 15	528 1,115	920 1,006			
15	Vincent	Newlin, No. 11	526	Robinson-4	874	345	1,155			
16	Vincent	Newlin, No. 7	526	Robinson-4	1,040	511	989	1,067	1,081	
17	Vincent	Newlin, No. 3	526	Robinson-4	890	364	1,136	931	No record	
18	Vincent	Newlin, No. 1	511	do	852	341	1,159	885		
19	Vincent	Newlin, No. 2	521	do	876	365	1,135	885		
20	Vincent	Newlin, No. 4	517	do	885	364	1,136	940		
21	Vincent	Newlin, No. 4	521	do	860	343	1,157	940		
22	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
23	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
24	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
25	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
26	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
27	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
28	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
29	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
30	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
31	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
32	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
33	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
34	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
35	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
36	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
37	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
38	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
39	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
40	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
41	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
42	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
43	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
44	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
45	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
46	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
47	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
48	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
49	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
50	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
51	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
52	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
53	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
54	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
55	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
56	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
57	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
58	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
59	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
60	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
61	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
62	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
63	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
64	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
65	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
66	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
67	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
68	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
69	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
70	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
71	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
72	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
73	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
74	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
75	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
76	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
77	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
78	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
79	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
80	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
81	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
82	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
83	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
84	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
85	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
86	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
87	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
88	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
89	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
90	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
91	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
92	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
93	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
94	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
95	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
96	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
97	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
98	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
99	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
100	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
101	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
102	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
103	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
104	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
105	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
106	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
107	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
108	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
109	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
110	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
111	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
112	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
113	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
114	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
115	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
116	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
117	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
118	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
119	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	462 518	1,036 982	1,066	Salt water	
120	Vincent	Newlin, No. 4	517	Robinson-3 Robinson-4	970 1,035	46				



## Crawford County—Robinson Township—Concluded.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
36— S. W.	10	Ohio.....	W. Jones, No. 2.....	506 {	Stray.....	888	.....	382	1,118	.....	.....	Gas, 938 feet. Salt water, 980 feet.
	11	Ohio.....	W. Jones, No. 1.....	486 {	Stray.....	858	.....	372	1,128	.....	.....	.....
	12	Ohio.....	W. Jones, No. 7.....	513 {	Robinson-3.....	953	.....	467	1,033	953	15	.....
	13	Ohio.....	W. Jones, No. 3.....	486 {	Robinson-2.....	960	6	447	1,033	960	20	.....
	14	Ohio.....	W. Jones, No. 6.....	513 {	Robinson-3.....	925	.....	439	1,081	932	60	Gas, 925 feet. Salt water.
	15	Ohio.....	W. Jones, No. 5.....	513 {	Robinson-1.....	970	.....	484	1,016	.....	.....	Gas, 832 feet.
	16	Ohio.....	W. Jones, No. 4.....	488 {	Robinson-2.....	929	4	416	1,084	.....	60	.....
	17	Ohio.....	Warnock, No. 3.....	486 {	Robinson-1.....	940	21	427	1,073	950	.....	.....
	18	Ohio.....	Warnock, No. 4.....	504 {	Robinson-2.....	832	6	419	1,081	954	30	Gas, 949 feet.
	19	Ohio.....	Warnock, No. 2.....	498 {	Robinson-1.....	946	12	436	1,084	954	75	Gas, 898 feet. Salt water, 922 feet.
	20	Ohio.....	Warnock, No. 1.....	498 {	Robinson-1.....	896	.....	410	1,090	900	.....	No record.
	21	Ohio.....	Walters, No. 13.....	522 {	.....	.....	.....	.....	.....	.....	.....	do.
	22	Ohio.....	Walters, No. 2.....	522 {	Stray.....	887	20	377	1,123	901	75	do.
	23	Ohio.....	Walters, No. 10.....	520 {	do.....	887	15	365	1,135	901	.....	do.
	24	Ohio.....	Walters, No. 5.....	522 {	Robinson-1.....	940	28	418	1,082	.....	.....	Salt water, 923 feet.
S. E.	3	Ohio.....	Walters, No. 16.....	505 {	Stray.....	845	15	395	1,140	.....	.....	.....
	4	Ohio.....	Walters, No. 9.....	522 {	Robinson-1 (?).....	900	12	395	1,105	900	40	.....
	5	Ohio.....	Walters, No. 20.....	522 {	Stray.....	887	15	385	1,135	.....	.....	.....
	6	Ohio.....	Walters, No. 18.....	526 {	Robinson-2.....	873	10	385	1,053	973	20	Salt water, 986 feet.
	7	Ohio.....	Walters, No. 18.....	503 {	Stray.....	871	26	371	1,128	874	60	.....
	8	Ohio.....	Walters, No. 23.....	518 {	do.....	877	7	359	1,141	.....	8	.....
	9	Ohio.....	Walters, No. 22.....	521 {	Robinson-1.....	945	22	427	1,073	947	.....	.....
					Stray.....	885	7	374	1,126	.....	.....	Gas, 898 feet.
					Robinson-3.....	904	16	433	1,067	944	20	.....

10	Ohio.....	Walters, No. 6.....	Robinson-1.....	900.....	395 1, 105.....	1, 148.....	Gas, 920 feet.
11	Leeper.....	Crebbs, No. 1.....	Stray Robinson-3.....	883.....	483 1, 017.....	.....	Salt water.....
12	Leeper.....	Crebbs, No. 3.....	Stray Robinson-4.....	1, 086.....	565 935.....	1, 102.....	.....
13	Leeper.....	Crebbs, No. 4.....	Stray Robinson-1.....	875.....	351 1, 149.....	.....	.....
14	Leeper.....	Crebbs, No. 9.....	Stray Robinson-2.....	930.....	406 1, 094.....	1, 160.....	.....
15	Leeper.....	Crebbs, No. 2.....	Stray Robinson-4.....	874.....	348 1, 152.....	.....	.....
16	Leeper.....	Crebbs, No. 8.....	Stray Robinson-1.....	883.....	359 1, 141.....	.....	.....
17	Leeper.....	Crebbs, No. 5.....	Stray Robinson-3.....	900.....	436 1, 064.....	.....	.....
18	Leeper.....	Crebbs, No. 7.....	Stray Robinson-4.....	1, 089.....	545 955.....	1, 213.....	Salt water, 1, 213 feet.
19	Leeper.....	Crebbs, No. 6.....	Stray Robinson-1.....	1, 188.....	664 836.....	.....	.....
				878.....	353 1, 147.....	.....	.....
				1, 086.....	561 939.....	1, 089.....	Quit in sand
				881.....	335 1, 165.....	.....	.....
				900.....	370 1, 130.....	942.....	.....
				874.....	389 1, 111.....	.....	.....
				900.....	348 1, 152.....	1, 002.....	.....
				883.....	464 1, 036.....	.....	.....
				870.....	332 1, 168.....	900.....	.....
				851.....	364 1, 136.....	365 1, 135.....	.....
				889.....	403 1, 097.....	965.....	.....

**Lawrence County—Bridgeport Township.**

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
1	N. E.	1 Showden Bros.	E. Fyffe, No. 2	528	Kirkwood	1,644	34	1,116	384	1,644	1,678		Salt water, 370 feet.
					Bridgeport	870		836	1,154			Salt water, 1,300 feet.	
					Buchanan	1,360		931	546			Salt water, 1,475 feet.	
					"Gas"	1,475		1,144	346			Salt water, 1,668 feet.	
2	Showden Bros.	E. Fyffe, No 5	524	Kirkwood-1	1,668	19	1,168	342	1,682			Salt water, 1,668 feet.	
				Kirkwood-2	1,682	15	1,188	312					
				Kirkwood-3	1,712	15	1,188	312	1,727	55			



6 Ohio	J. Lewis, No. 8.	473	Bridgeport-1	788	8	316	1,184	.....	.....	.....	.....	.....
7 Ohio	J. Lewis, No. 10.	481	Bridgeport-2	708	20	424	1,177	.....	830	.....	.....	.....
8 Ohio	J. Lewis, No. 9.	486	do	895	40	414	1,086	.....	.....	.....	.....	.....
9 Ohio	Eshelman, No. 9.	488	Bridgeport-1	840	10	324	1,176	.....	.....	.....	.....	.....
10 Ohio	Eshelman, No. 6.	498	Bridgeport-2	885	5	360	1,101	.....	.....	.....	.....	.....
11 Ohio	Eshelman, No. 5.	493	Bridgeport-3	885	38	409	1,091	.....	.....	.....	.....	.....
12 Ohio	Eshelman, No. 1.	470	do	884	10	371	1,071	.....	.....	.....	.....	.....
13 Ohio	Eshelman, No. 4.	490	Kirkwood	885	10	371	1,071	.....	.....	.....	.....	.....
14 Ohio	Eshelman, No. 3.	484	Bridgeport-1	885	10	371	1,071	.....	.....	.....	.....	.....
15 Ohio	Eshelman, No. 2.	483	Bridgeport-2	885	10	371	1,071	.....	.....	.....	.....	.....
16 Ohio	Eshelman, No. 7.	478	Bridgeport-3	885	10	371	1,071	.....	.....	.....	.....	.....
17 Ohio	Eshelman, No. 8.	465	do	885	10	371	1,071	.....	.....	.....	.....	.....
18 Ohio	Eshelman, No. 10.	465	Bridgeport-1	885	10	371	1,071	.....	.....	.....	.....	.....
19 Ohio	Cooper, No. 11.	465	Bridgeport-2	885	10	371	1,071	.....	.....	.....	.....	.....
20 Ohio	Cooper, No. 7.	509	Bridgeport-3	885	10	371	1,071	.....	.....	.....	.....	.....
21 Ohio	Cooper, No. 14.	498	Bridgeport-1	885	10	371	1,071	.....	.....	.....	.....	.....
22 Ohio	Cooper, No. 15.	500	Bridgeport-2	885	10	371	1,071	.....	.....	.....	.....	.....
23 Ohio	Cooper, No. 17.	492	Bridgeport-3	885	10	371	1,071	.....	.....	.....	.....	.....
24 Ohio	Cooper, No. 18.	495	Bridgeport-1	885	10	371	1,071	.....	.....	.....	.....	.....
25 Ohio	Cooper, No. 8.	522	Bridgeport-2	885	10	371	1,071	.....	.....	.....	.....	.....
26 Ohio	Cooper, No. 5.	521	Bridgeport-3	885	10	371	1,071	.....	.....	.....	.....	.....
27 Ohio	Cooper, No. 25.	508	Bridgeport-1	885	10	371	1,071	.....	.....	.....	.....	.....
28 Ohio	Cooper, No. 1.	507	Bridgeport-2	885	10	371	1,071	.....	.....	.....	.....	.....
29 Ohio	McElfresh, No. 11.	507	Bridgeport-3	885	10	371	1,071	.....	.....	.....	.....	.....
30 Ohio	McElfresh, No. 12.	504	do	885	10	371	1,071	.....	.....	.....	.....	.....
31 Ohio	McElfresh, No. 3.	519	Kirkwood	885	10	371	1,071	.....	.....	.....	.....	.....
32 Ohio	McElfresh, No. 3.	519	Bridgeport-1	885	10	371	1,071	.....	.....	.....	.....	.....
33 Ohio	McElfresh, No. 3.	519	Bridgeport-3	885	10	371	1,071	.....	.....	.....	.....	.....

## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.		
5— N. W.	14	Ohio.....	McElfresh, No. 2.....	513	Bridgeport-2	925	22	412	1,088		
	15	Ohio.....	McElfresh, No. 4.....	520	Bridgeport-3	1,030	20	517	1,033		
	16	Ohio.....	McElfresh, No. 1.....	503	do	1,032	27	513	1,038		
	17	Ohio.....	McElfresh, No. 13.....	519	Bridgeport-1	1,033	20	517	1,038		
	18	Ohio.....	McElfresh, No. 6.....	529	Bridgeport-2	1,033	20	517	1,038		
	19	Ohio.....	McElfresh, No. 14.....	530	do	1,033	20	517	1,038		
	20	Ohio.....	McElfresh, No. 10.....	520	Bridgeport-2	1,033	20	517	1,038		
	21	Ohio.....	McElfresh, No. 16.....	505	Tracy	1,033	20	517	1,038		
	22	Ohio.....	McElfresh, No. 5.....	506	McElfresh	1,033	20	517	1,038		
	23	Ohio.....	Cooper, No. 19.....	504	do	1,033	20	517	1,038		
	24	Ohio.....	Cooper, No. 26.....	503	do	1,033	20	517	1,038		
	25	Ohio.....	Cooper, No. 13.....	506	Bridgeport-1	1,033	20	517	1,038		
	26	Ohio.....	Cooper, No. 9.....	507	Bridgeport-3	1,033	20	517	1,038		
	27	Ohio.....	Cooper, No. 21.....	487	Bridgeport-2	1,033	20	517	1,038		
	28	Ohio.....	Cooper, No. 24.....	478	do	1,033	20	517	1,038		
	29	Ohio.....	Cooper, No. 23.....	475	do	1,033	20	517	1,038		
	30	Ohio.....	Cooper, No. 20.....	444	Bridgeport-1	1,033	20	517	1,038		
S. W.	1	Ohio.....	Cooper, No. 12.....	449	Bridgeport-2	1,033	20	517	1,038		
	2	Ohio.....	Cooper, No. 12.....	449	Bridgeport-2	1,033	20	517	1,038		

6 Ohio	Newell, No. 70.	490	do	Bridgeport-3	890	14	327	1,103	933	972	75	.....
7 Ohio	Newell, No. 12	507	do	Bridgeport-3	930	42	931	1,069	970	990	100	.....
8 Henley, Watson, et al.	School House Lot, No. 1	521	do	do	962	28	455	1,045	.....	.....	No record	.....
9 Henley, Watson, et al.	School House Lot, No. 2	520	do	do	.....	.....	.....	.....	.....	.....	do	.....
10 Ohio	J. King, No. 26	518	do	do	.....	.....	.....	.....	.....	.....	.....	.....
11 Ohio	Newell, No. 11	511	do	do	.....	.....	.....	.....	.....	.....	.....	.....
12 Ohio	Newell, No. 13	508	do	do	.....	.....	.....	.....	.....	.....	.....	.....
13 Ohio	Newell, No. 3	492	do	do	.....	.....	.....	.....	.....	.....	.....	.....
14 Ohio	Newell, No. 1	467	do	do	.....	.....	.....	.....	.....	.....	.....	.....
15 Ohio	Newell, No. 2	458	do	do	.....	.....	.....	.....	.....	.....	.....	.....
16 Ohio	Newell, No. 4	468	do	do	.....	.....	.....	.....	.....	.....	.....	.....
17 Ohio	Newell, No. 5	462	do	do	.....	.....	.....	.....	.....	.....	.....	.....
18 Ohio	Newell, No. 6	468	do	do	.....	.....	.....	.....	.....	.....	.....	.....
19 Ohio	Newell, No. 7	459	do	do	.....	.....	.....	.....	.....	.....	.....	.....
20 Ohio	Newell, No. 8	463	do	do	.....	.....	.....	.....	.....	.....	.....	.....
21 Ohio	Newell, No. 9	482	do	do	.....	.....	.....	.....	.....	.....	.....	.....
22 Ohio	Cooper, No. 6	470	do	do	.....	.....	.....	.....	.....	.....	.....	.....
23 Ohio	Cooper, No. 4	467	do	do	.....	.....	.....	.....	.....	.....	.....	.....
24 Ohio	Cooper, No. 3	476	do	do	.....	.....	.....	.....	.....	.....	.....	.....
25 Ohio	Cooper, No. 2	477	do	do	.....	.....	.....	.....	.....	.....	.....	.....
26 Ohio	Cooper, No. 10	487	do	do	.....	.....	.....	.....	.....	.....	.....	.....
27 Ohio	Cooper, No. 15	502	do	do	.....	.....	.....	.....	.....	.....	.....	.....
1 Ohio	Robbins, No. 1	478	do	do	.....	.....	.....	.....	.....	.....	.....	.....
2 Ohio	Robbins, No. 7	466	do	do	.....	.....	.....	.....	.....	.....	.....	.....
3 Ohio	Robbins, No. 5	492	do	do	.....	.....	.....	.....	.....	.....	.....	.....
4 Ohio	Robbins, No. 11	484	do	do	.....	.....	.....	.....	.....	.....	.....	.....
5 Ohio	Robbins, No. 15	504	do	do	.....	.....	.....	.....	.....	.....	.....	.....
6 Ohio	Robbins, No. 13	508	do	do	.....	.....	.....	.....	.....	.....	.....	.....
7 Ohio	Robbins, No. 10	480	do	do	.....	.....	.....	.....	.....	.....	.....	.....
8 Ohio	Robbins, No. 2	477	do	do	.....	.....	.....	.....	.....	.....	.....	.....
9 Ohio	Robbins, No. 3	481	do	do	.....	.....	.....	.....	.....	.....	.....	.....
10 Ohio	Robbins, No. 12	486	do	do	.....	.....	.....	.....	.....	.....	.....	.....

## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur- face ele- va- tion— feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
N. E..	10	Snowden Bros.....	Cummings, No. 9.....	496	Bridgeport.....	825	12	329	1,171	337	Show	.....
					do.....	920	30	424	1,076	.....	.....	Salt water, 990 feet.....
					do.....	976	29	490	1,020	.....	.....	.....
					Bridgeport and	.....	.....	.....	.....	.....	.....	.....
					Buchanan-1.....	1,025	145	529	971	.....	.....	.....
					Buchanan-2.....	1,190	25	694	806	.....	.....	.....
					Kirkwood-1.....	1,412	7	916	684	.....	.....	.....
					Kirkwood-2.....	1,428	7	932	568	.....	.....	.....
					Kirkwood-3.....	1,460	5	964	536	.....	Show	.....
					Tracey.....	1,590	6	1,084	416	.....	.....	.....
					McClosky.....	1,626	26	1,130	370	1,650	400	Lime and sand. Gas, 1,638 feet.....
N. E..	11	Snowden Bros.....	Cummings, No. 4.....	501	Bridgeport-1.....	825	20	324	1,176	.....	.....	.....
					Bridgeport-2.....	945	40	444	1,056	985	.....	.....
					Bridgeport-3.....	990	17	489	1,011	1,007	45	.....
					Bridgeport.....	815	30	314	1,186	835	Show	.....
					do.....	880	10	379	1,121	.....	.....	.....
					do.....	930	56	429	1,071	.....	.....	.....
N. E..	12	Snowden Bros.....	Cummings, No. 10.....	501	do.....	992	26	401	1,009	975	.....	.....
					Buchanan.....	1,025	126	524	976	.....	.....	Salt water, 1,020 feet.....
					Stray.....	1,172	15	671	829	.....	Show	Show of gas, 1,351 feet.....
					"Gas".....	1,351	22	850	660	1,351	.....	Salt water, 1,365 feet.....
					Stray.....	1,393	7	892	608	.....	.....	.....
					Kirkwood.....	1,460	25	969	541	.....	.....	.....
N. E..	12	Snowden Bros.....	Cummings, No. 10.....	501	McClosky.....	1,675	50	1,174	326	1,700	1,753	.....
					McClosky.....	1,675	50	1,174	326	1,700	1,753	.....

[illegible]



## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face ele-va-tion—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
N. E..	10	Snowden Bros.....	Cummings, No. 9.....	496	Bridgeport.....	825	12	329	1,171	837	.....	Show	.....
					do.....	920	20	424	1,076	.....	.....	.....	Salt water, 990 feet.....
					do.....	876	28	490	1,020	.....	.....	.....	.....
					Bridgeport anc.	.....	.....	.....	.....	.....	.....	.....	.....
					Buchanan-1.....	1,025	145	529	971	.....	.....	.....	.....
					Buchanan-2.....	1,190	25	694	906	.....	.....	.....	Hole full water, 1,045 feet.
					Kirkwood-1.....	1,412	7	916	584	.....	.....	.....	.....
					Kirkwood-2.....	1,428	7	932	568	.....	.....	Show	.....
					Kirkwood-3.....	1,460	6	964	536	.....	.....	.....	.....
					Tracey.....	1,580	6	1,084	416	.....	.....	.....	.....
					McClosky.....	1,626	26	1,130	370	1,650	1,662	400	Lime and sand. Gas, 1,438 feet.....
					Bridgeport-1.....	825	20	324	1,176	.....	.....	.....	.....
					Bridgeport-2.....	945	40	444	1,056	985	.....	.....	.....
					Bridgeport-3.....	990	17	489	1,011	.....	1,007	45	.....
N. E..	11	Snowden Bros.....	Cummings, No. 4.....	501	Bridgeport.....	815	20	314	1,186	835	.....	Show	.....
					do.....	880	10	379	1,121	.....	.....	.....	.....
					do.....	820	56	429	1,071	.....	.....	.....	.....
					do.....	962	28	491	1,009	975	.....	.....	.....
					Buchanan.....	1,025	126	524	976	.....	.....	.....	Salt water, 1,020 feet.....
					Stray.....	1,172	15	671	839	.....	.....	.....	Show of gas, 1,351 feet.
					"Gas".....	1,351	22	860	660	1,351	.....	Show	Salt water, 1,245 feet.....
					Stray.....	1,393	7	892	604	.....	.....	.....	.....
					Kirkwood.....	1,460	25	969	641	.....	.....	.....	.....
					McClosky.....	1,675	50	1,174	326	1,700	1,752	.....	.....

13	Lantz.	Burns, No. 14.	459	do.....	9029	36	443	1,057	910	.....	Salt water, 980 feet.
14	Lantz.	Burns, No. 2.	464	Stray.....	1,340	90	891	619	1,340	.....	Salt water, 1,340 feet.
15	Lantz.	Burns, No. 2a.	462	Buchanan-2	1,268	900	804	606	1,268	120	No. 2 redrilled.
16	Lantz.	Burns, No. 3.	460	Bridgeport-1	820	20	358	1,142	.....	.....	Show
17	Ohio.	J. King, No. 6.	453	Bridgeport-2	905	15	443	1,057	917	949	90
18	Ohio.	J. King, No. 27.	453	Bridgeport-3	940	6	478	1,022	.....	.....	Show
19	Ohio.	J. King, No. 8.	464	Bridgeport-1	908	6	360	1,140	.....	.....	Show
20	Ohio.	J. King, No. 22.	467	Bridgeport-2	940	10	480	1,020	.....	.....	Show
21	Ohio.	J. King, No. 2.	455	Buchanan	1,249	31	789	711	1,417	.....	80
22	Ohio.	J. King, No. 1.	463	Kirkwood	1,419	22	957	543	1,417	.....	80
23	Ohio.	J. King, No. 7.	487	Bridgeport-1	815	20	362	1,138	.....	.....	90
24	Ohio.	J. King, No. 11.	490	Bridgeport-2	900	15	447	1,053	.....	.....	90
25	Ohio.	J. King, No. 23.	490	Bridgeport-3	925	20	472	1,028	925	945	75
26	Ohio.	J. King, No. 17.	495	Buchanan	1,230	37	937	563	1,400	1,430	75
27	Ohio.	J. King, No. 15.	511	Bridgeport-1	905	15	341	1,159	810	.....	75
28	Lantz.	Burns, No. 12.	519	Bridgeport-2	1,244	22	777	723	1,441	1,441	125
29	Lantz.	Burns, No. 6.	479	Bridgeport-3	853	22	397	1,049	906	839	.....
30	Lantz.	Burns, No. 5.	473	Bridgeport-1	789	12	326	1,174	.....	.....	.....
31	Lantz.	Burns, No. 8.	476	Bridgeport-2	855	10	352	1,108	.....	.....	.....
				Bridgeport-3	901	41	438	1,052	902	942	.....
				Buchanan	830	8	343	1,157	.....	.....	.....
				Bridgeport-1	933	69	446	1,054	940	902	100
				Bridgeport-2	886	65	405	1,065	910	960	50
				Bridgeport-3	1,463	12	478	822	1,468	1,491	60
				Kirkwood	1,320	10	375	1,175	.....	.....	.....
				Bridgeport-1	810	10	375	1,175	.....	.....	.....
				do.....	1,410	16	914	580	1,410	1,429	50
				Bridgeport-2	1,402	25	498	1,033	1,538	1,554	30
				Buchanan	1,003	34	708	705	1,321	1,348	.....
				Bridgeport-1	915	17	436	1,064	.....	.....	.....
				Bridgeport-2	980	15	481	1,019	.....	.....	.....
				Buchanan	1,280	20	801	686	1,300	.....	.....
				Kirkwood-1	1,469	23	990	510	.....	.....	.....
				Kirkwood-2	1,540	100	1,031	439	.....	1,640	120
				Bridgeport-2	899	36	427	1,073	906	.....	.....
				Bridgeport-3	940	20	468	1,032	.....	.....	.....
				Buchanan	1,253	14	786	714	.....	.....	.....
				Kirkwood	1,424	51	952	548	1,435	.....	.....
				Bridgeport-2	922	8	446	1,054	.....	.....	.....
				Bridgeport-3	940	10	464	1,036	.....	950	.....
				Burns, No. 8.	.....	.....	.....	.....	.....	.....	Salt water, 940 feet.
				Burns, No. 5.	.....	.....	.....	.....	.....	.....	Gas, 1,283 feet 100,000 cu- bic feet gas daily
				Burns, No. 8.	.....	.....	.....	.....	.....	.....	Salt water, 940 feet.
				Burns, No. 8.	.....	.....	.....	.....	.....	.....	Gas, 1,283 feet 100,000 cu- bic feet gas daily

## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
6—N. W.	1	Ohio.....	Cullison, No. 2.....	539	Kirkwood.....	1,526	56	986	514	1,553	65	.....
	2	Ohio.....	Cullison, No. 6.....	532	do.....	1,400	40	1,068	514	1,583	.....	.....
	3	Ohio.....	Cullison, No. 5.....	533	Tracy.....	1,485	14	1,083	514	1,583	.....	.....
	4	Ohio.....	Cullison, No. 5.....	523	Kirkwood.....	1,498	24	1,075	435	1,693	45	20 Gas, 1,687 feet.
	5	Ohio.....	Severn, No. 6.....	523	do.....	1,489	26	1,097	433	1,698	35	.....
	6	Ohio.....	Severn, No. 8.....	523	do.....	1,572	28	1,040	431	1,680	20	Gas, 1,675 feet.
	7	Ohio.....	Severn, No. 2.....	520	Kirkwood.....	1,537	24	1,037	463	1,680	90	Gas, 1,668 feet.
	8	Ohio.....	Severn, No. 3.....	524	Bridgeport-2.....	1,541	22	1,035	465	1,683	100	.....
	9	Bridgeport.....	Abernathy, No. 1.....	531	Kirkwood.....	1,559	31	1,035	465	1,683	250	.....
	10	Bridgeport.....	Abernathy, No. 2.....	512	Bridgeport-2.....	1,490	60	1,068	512	1,612	125	Salt water, 1,600 feet.
	11	Bridgeport.....	Abernathy, No. 4.....	518	Stray.....	1,587	17	1,075	425	1,612	.....	.....
	12	Bridgeport.....	Abernathy, No. 4.....	518	Kirkwood.....	1,587	31	1,035	465	1,683	.....	.....
	13	Bridgeport.....	Abernathy, No. 4.....	518	do.....	1,587	31	1,035	465	1,683	.....	.....
	14	Bridgeport.....	Abernathy, No. 4.....	518	Buchanan-1.....	1,715	80	697	893	.....	.....	.....
11—Snowden Bros.	1	Ohio.....	Cullison, No. 2.....	539	Buchanan-2.....	1,300	26	783	718	.....	.....	.....
	2	Ohio.....	Cullison, No. 6.....	532	Stray.....	1,400	26	942	558	1,470	50	Salt water, 1,470 feet.
	3	Ohio.....	Cullison, No. 5.....	523	Kirkwood.....	1,572	28	1,040	431	1,680	.....	.....
	4	Ohio.....	Cullison, No. 5.....	523	do.....	1,498	24	1,097	433	1,698	.....	.....
	5	Ohio.....	Cullison, No. 5.....	523	Tracy.....	1,485	14	1,083	514	1,583	.....	.....
	6	Ohio.....	Cullison, No. 5.....	523	Kirkwood.....	1,498	24	1,097	433	1,698	.....	.....
	7	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	8	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	9	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	10	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	11	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	12	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	13	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	14	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
12—Snowden Bros.	1	Ohio.....	Cullison, No. 2.....	539	Kirkwood.....	1,526	56	986	514	1,553	.....	.....
	2	Ohio.....	Cullison, No. 6.....	532	do.....	1,400	40	1,068	514	1,583	.....	.....
	3	Ohio.....	Cullison, No. 5.....	523	Tracy.....	1,485	14	1,083	514	1,583	.....	.....
	4	Ohio.....	Cullison, No. 5.....	523	Kirkwood.....	1,498	24	1,097	433	1,698	.....	.....
	5	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	6	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	7	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	8	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	9	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	10	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	11	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	12	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	13	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	14	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
13—Snowden Bros.	1	Ohio.....	Cullison, No. 2.....	539	Kirkwood.....	1,526	56	986	514	1,553	.....	.....
	2	Ohio.....	Cullison, No. 6.....	532	do.....	1,400	40	1,068	514	1,583	.....	.....
	3	Ohio.....	Cullison, No. 5.....	523	Tracy.....	1,485	14	1,083	514	1,583	.....	.....
	4	Ohio.....	Cullison, No. 5.....	523	Kirkwood.....	1,498	24	1,097	433	1,698	.....	.....
	5	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	6	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	7	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	8	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	9	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	10	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	11	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	12	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	13	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	14	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
14—Ohio.....	1	Ohio.....	Cullison, No. 2.....	539	Kirkwood.....	1,526	56	986	514	1,553	.....	.....
	2	Ohio.....	Cullison, No. 6.....	532	do.....	1,400	40	1,068	514	1,583	.....	.....
	3	Ohio.....	Cullison, No. 5.....	523	Tracy.....	1,485	14	1,083	514	1,583	.....	.....
	4	Ohio.....	Cullison, No. 5.....	523	Kirkwood.....	1,498	24	1,097	433	1,698	.....	.....
	5	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	6	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	7	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	8	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	9	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	10	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	11	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	12	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	13	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....
	14	Ohio.....	Cullison, No. 5.....	523	do.....	1,489	26	1,097	433	1,698	.....	.....

S. W.	18 Ohio.....	514	do.....	1,606	29	1,092	408	1,611	1,636	75
	19 Ohio.....	499	do.....	1,632	46	1,153	367	1,632	1,660	75
	1 Ohio.....	495	do.....	1,630	31	1,153	365	1,667	1,665	100
	2 Ohio.....	485	do.....	1,637	20	1,153	317	1,678	1,707	50 Gas, 1,678 feet.
	3 Ohio.....	518	do.....	1,677	51	1,159	341	1,685	1,733	20 Gas, 1,680 feet.
	4 Ohio.....	526	do.....	1,613	12	1,057	413	1,613	2,020	10 Gas, 1,615 feet.
	5 Ohio.....	520	do.....	1,553	5	1,063	437	1,583	1,648	20
S. E.	1 Ohio.....	537	do.....	1,563	76	1,026	474	1,563	1,639	75
	2 Ohio.....	533	Bridgeport-3.	1,604	6	471	1,029	1,630	1,640	75 Gas, 1,630 feet.
	3 Ohio.....	533	Kirkwood	1,628	12	1,065	405	1,630	1,640	75 Gas, 1,630 feet.
	4 Ohio.....	520	Buchanan	1,520	12	787	713	1,571	1,583	260
	5 Ohio.....	530	Kirkwood	1,562	26	1,029	471	1,571	1,583	110
	6 Ohio.....	532	do.....	1,511	41	991	509	1,518	1,557	100
	7 Ohio.....	532	Bridgeport-3.	969	22	459	1,641	994	1,011	178
	8 Ohio.....	540	do.....	978	32	446	1,654	983	1,010	15
	9 Ohio.....	543	Bridgeport-2.	912	74	380	1,10	978	1,040	60
	10 Ohio.....	543	Kirkwood	1,616	24	1,076	424	1,618	1,640	80
	11 Ohio.....	499	do.....	1,548	28	1,008	405	1,548	1,620	120
	12 Ohio.....	533	Bridgeport-2.	968	38	409	1,031	919	960	80
	13 Ohio.....	533	do.....	932	38	437	970	932	970	80
	14 Ohio.....	533	Tracy	1,656	8	1,154	378	1,654	1,780	80 Gas, 1,745 feet.
	15 Ohio.....	533	McClosky	1,745	11	1,213	287	1,753	1,780	75 Gas, 1,784 feet.
	16 Ohio.....	533	Kirkwood	1,578	25	1,046	454	1,787	1,818	100
	17 Ohio.....	504	McClosky	1,782	8	1,260	260	1,807	1,822	50
N. E.	1 Ohio.....	504	Buchanan	1,290	29	999	511	1,507	1,522	150 Gas, 1,640 feet.
	2 Ohio.....	515	Kirkwood	1,538	29	999	511	1,507	1,522	120 Gas, 1,610 feet.
	3 Ohio.....	513	Bridgeport-3.	1,000	25	458	1,015	1,316	1,349	30 No record</td
	4 Ohio.....	501	Buchanan	1,316	34	800	700	1,316	1,349	Known locally as the Cooper sand.
	5 Ohio.....	528	do.....	1,329	30	816	694	1,640	1,660	100
	6 Ohio.....	521	Kirkwood	1,635	16	1,122	378	1,640	1,660	35 Gas, 1,625 feet.
	7 Ohio.....	520	Buchanan	1,300	30	799	701	1,606	1,632	40 Dry</td
	8 Ohio.....	515	Buchanan	1,604	19	1,03	397	1,606	1,632	40 Gas, 1,805 feet.
	9 Ohio.....	528	Kirkwood	1,308	12	758	715	1,651	1,667	80
	10 Ohio.....	521	Buchanan	1,636	34	1,102	398	1,651	1,667	100
	11 Ohio.....	521	do.....	1,328	17	808	692	1,651	1,667	100
	12 Ohio.....	520	do.....	1,353	52	818	692	1,651	1,667	100
	13 Ohio.....	515	Kirkwood	1,570	32	1,056	445	1,651	1,667	100
	14 Ohio.....	495	Buchanan	1,318	40	830	690	1,651	1,667	100
	15 Ohio.....	518	Kirkwood-1	1,565	10	1,100	400	1,651	1,667	100
	16 Ohio.....	518	Kirkwood-2	1,622	5	1,127	373	1,651	1,667	100
	17 Ohio.....	470	Kirkwood	1,620	14	1,028	398	1,628	1,642	35 Gas, 1,625 feet.
	18 Ohio.....	465	Buchanan-1	1,270	60	800	700	1,628	1,642	35
	19 Ohio.....	465	Buchanan-2	1,368	130	915	535	1,741	1,741	40 Dry</td
	20 Ohio.....	456	Kirkwood	1,620	31	1,155	345	1,800	2,001	40 Gas, 1,805 feet.
	21 Ohio.....	456	McClosky	1,796	14	1,331	169	1,800	2,001	80
	22 Ohio.....	467	Kirkwood	1,583	27	1,129	371	1,805	1,649	80
	23 Ohio.....	467	do.....	1,590	38	1,102	398	1,805	1,649	100
	24 Ohio.....	467	Kirkwood-1	1,540	16	1,070	430	1,805	1,649	100
	25 Ohio.....	467	Kirkwood-2	1,564	10	1,094	400	1,805	1,649	100

## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
7—S. E...	4	Shaffer & Smathers	W. Finley, No. 35.	495	Kirkwood	1,550	35	1,065	435	1,552	100	
	5	Allshouse & Son	Long, No. 3.	487	Kirkwood-1	1,549	38	1,062	438			
	6	Allshouse & Son	Long, No. 2.	480	Kirkwood-2	1,615	15	1,128	372			
	7	Allshouse & Son	Long, No. 5.	478	Kirkwood-1	1,556	41	1,176	424			
	8	Allshouse & Son	Long, No. 8.	471	Kirkwood-2	1,627	6	1,147	453			
	9	Allshouse & Son	Long, No. 9.	460	Kirkwood-1	1,565	45	1,167	413			
	10	Allshouse & Son	Long, No. 11.	460	Kirkwood-2	1,631	12	1,153	347			
	11	Allshouse & Son	Long, No. 7.	456	Kirkwood-1	1,565	43	1,104	466			
	12	Allshouse & Son	Long, No. 4.	480	Kirkwood-2	1,631	8	1,160	340			
	13	Allshouse & Son	Long, No. 6.	500	Kirkwood-1	1,631	9	1,160	340			
	14	Allshouse & Son	Long, No. 10.	495	Kirkwood-2	1,631	17	1,123	317	1,757		
					Tracy	1,708	22	1,226	275			
					Tracy	1,747	19	1,246	254			
					Tracy	1,750	38	1,237	213	1,766		
					Tracy	1,844	7	1,184	316			
					Tracy	1,876	19	1,216	280			
					Tracy	1,762	10	1,202	196	1,783		
					Tracy	1,590	40	1,071	436			
					Tracy	1,623	21	1,137	363			
					Tracy	1,662	8	1,176	324			
					Tracy	1,731	14	1,248	282			
					Tracy	1,563	37	1,071	426			
					Tracy	1,619	13	1,130	370			
					Tracy	1,623	10	1,123	377			
					Tracy	1,726	8	1,220	270	1,860		
					Tracy	1,400	16	1,103	385			
					Tracy	1,651	9	1,156	344			
					Tracy	1,690	6	1,196	306			
					Tracy	1,712	8	1,217	293	1,732		

15	Big Four.	Buchanan Hrs. No. 9.	498	Kirkwood-1	1,648	5	1,150	350	1,681	30		
16	Big Four.	Buchanan Hrs. No. 15.	502	Kirkwood-2	1,672	12	1,474	326	964	100	Salt water, 1,509 feet.	
17	Big Four.	Buchanan Hrs. No. 13.	503	Kirkwood-1	1,646	48	1,060	357	1,651		Sour oil.	
18	Big Four.	Buchanan Hrs. No. 11.	496	Kirkwood-2	1,670	8	1,167	333	1,722	76	Salt water, 1,492 feet.	
19	Big Four.	Buchanan Hrs. No. 14.	505	Tracy	1,722	10	1,219	331	1,732	100	Salt water, 1,493 feet.	
20	Ohio.	A. Griggs, No. 1.	492	Kirkwood-1	1,653	12	1,167	343	1,685	63	Gas, 1,662 feet.	
21	Ohio.	A. Griggs, No. 2.	481	Kirkwood-2	1,673	12	1,171	323	1,744	40		
22	Ohio.	Gray, No. 2.	486	Kirkwood	1,646	8	1,141	359	1,745	1,995		
1	Ohio.	Judy, No. 6.	474	Tracy	1,732	6	1,227	373	1,770	2,001		
2	Ohio.	Judy, No. 3.	479	Kirkwood-1	1,625	12	1,133	367	1,830	96		
3	Ohio.	Judy, No. 2.	474	Kirkwood-2	1,659	13	1,160	340	1,872	150	Salt water, 955 feet.	
4	Ohio.	Judy, No. 5.	462	Kirkwood	1,641	11	1,167	340	1,745	75	Salt water, 948 feet.	
5	Ohio.	Judy, No. 4.	457	Tracy	1,738	12	1,257	243	1,770	98		
6	Ohio.	Judy, No. 7.	470	do	1,770	12	1,254	216	1,770	50		
7	Ohio.	Judy, No. 1.	470	Bridgeport-2	885	72	411	1,089	885	60		
8	Ohio.	Booe, No. 23.	456	Bridgeport-1	830	40	351	1,149	957	75		
9	Ohio.	Booe, No. 38.	471	Bridgeport-2	892	65	413	1,067	900	60	Gas, 1,363 feet.	
10	Ohio.	Booe, No. 14.	471	Bridgeport-1	836	25	366	1,134	913	100	No record.	
11	Ohio.	Booe, No. 28.	468	do	913	29	458	1,042	918	100		
12	Ohio.	Booe, No. 18.	464	Bridgeport-2	890	60	419	1,081	1,375	1,398		
13	Ohio.	Booe, No. 22.	457	Bridgeport-1	836	25	366	1,134	913	100		
14	Ohio.	Booe, No. 7.	456	do	913	29	458	1,042	918	100		
15	Ohio.	Booe, No. 13.	450	do	892	38	436	1,064	885	100		
16	Ohio.	Booe, No. 31.	460	do	873	53	423	1,077	874	60		
17	Ohio.	Booe, No. 20.	463	Bridgeport-1	890	38	420	1,080	880	50	Salt water, 935 feet.	
18	Ohio.	Booe, No. 33.	462	Bridgeport-2	835	15	372	1,128	899	220		
19	Ohio.	Booe, No. 35.	452	Bridgeport	896	9	423	1,077	884	115		
20	Ohio.	Booe, No. 4.	447	do	874	42	423	1,078	884	60		
21	Ohio.	Booe, No. 37.	457	Bridgeport-2	885	43	433	1,067	880	100		
22	Ohio.	Booe, No. 21.	457	do	876	53	424	1,076	880	50		
23	Ohio.	Booe, No. 26.	476	do	878	40	431	1,069	883	927		
24	Ohio.	Booe, No. 15.	465	Bridgeport-1	873	43	416	1,084	883	100		
25	Ohio.	Booe, No. 17.	465	Bridgeport-2	873	43	416	1,084	883	100		
26	Ohio.	Booe, No. 16.	459	do	810	30	353	1,147	902	50		
				Kirkwood	890	47	433	1,067	902	50		
				do	1,335	25	559	641	1,475	50		
				do	1,470	20	964	506	1,475	100	Gas, 918 feet.	
				do	915	30	436	1,084	918	100	Salt water, 933 feet.	
				do	894	59	426	1,071	925	128	Salt water, 933 feet.	
				do	888	40	429	1,071	925	128	Gas, 890 feet.	

## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
8— N. E..	27 Ohio.....	Williams, No. 2.....	459	Bridgeport-2.....	887	.....	.....	428	1,072	888	150	.....
	28 Ohio.....	Williams, No. 7.....	476	Bridgeport-1.....	908	10	.....	434	1,068	920	100	.....
	29 Ohio.....	Williams, No. 4.....	485	do.....	923	59	.....	438	1,062	974	128	.....
	30 Ohio.....	Williams, No. 8.....	480	Kirkwood.....	1,400	22	.....	980	520	1,400	55	.....
	31 Ohio.....	Williams, No. 6.....	489	Bridgeport-1.....	948	12	.....	369	1,141	920	100	.....
	32 Ohio.....	Williams, No. 5.....	488	Bridgeport-2.....	905	46	.....	416	1,064	951	.....	.....
	33 Ohio.....	Williams, No. 1.....	474	Bridgeport-1.....	937	6	.....	349	1,151	956	128	.....
	34 Ohio.....	Williams, No. 3.....	467	Bridgeport-2.....	906	50	.....	418	1,052	910	.....	.....
	1 Ohio.....	J. King, No. 3.....	483	Bridgeport-1.....	801	24	.....	327	1,178	806	926	100
	2 Ohio.....	J. King, No. 4.....	464	Bridgeport-2.....	872	28	.....	409	1,091	907	947	.....
	3 Ohio.....	J. King, No. 5.....	454	Bridgeport-3.....	925	30	.....	336	1,164	955	.....	.....
N. W..	4 Ohio.....	Booe, No. 25.....	482	Bridgeport-3.....	884	16	.....	430	1,070	925	.....	.....
	5 Ohio.....	Booe, No. 12.....	452	Kirkwood.....	916	18	.....	462	1,038	934	75	.....
	6 Ohio.....	Booe, No. 11.....	450	Bridgeport-1.....	1,406	26	.....	954	546	1,414	.....	.....
	7 Ohio.....	Booe, No. 24.....	450	Bridgeport-2.....	822	8	.....	370	1,130	901	50	.....
	8 Ohio.....	Booe, No. 32.....	452	do.....	890	48	.....	438	1,052	926	76	.....
	9 Ohio.....	Booe, No. 36.....	453	Buchanan.....	878	47	.....	426	1,072	890	80	.....
	10 Ohio.....	Booe, No. 10.....	453	do.....	1,255	12	.....	905	945	1,255	.....	.....
	11 Lanta.....	Burns, No. 13.....	459	Bridgeport-2.....	892	50	.....	440	1,060	.....	.....	.....
	12 Lanta.....	Burns, No. 1.....	459	Buchanan.....	1,265	40	.....	813	667	1,447	160	Gas, 1,263 feet.
				Kirkwood.....	1,444	33	.....	992	508	1,479	700	.....
				Bridgeport-2.....	1,254	36	.....	802	689	1,268	76	.....
				do.....	890	40	.....	426	1,072	894	75	.....
				Buchanan.....	899	41	.....	440	1,060	.....	.....	.....
				Kirkwood.....	1,265	60	.....	704	1,260	1,260	387	Gas, 1,256 feet.
				Bridgeport-2.....	1,450	58	.....	991	509	1,460	Light	.....
					890	27	.....	440	1,060	1,400	110	.....

46	Junio	Thorn, No. 13	493	Buchanan	1,318	17	825	676	1,319	1,335	225	
47	Ohio	Thorn, No. 14	494	do	1,297		803	697	1,305	1,314	200	
48	Ohio	Thorn, No. 17	473	do	1,272		799	701	1,276	1,288	200	
49	Ohio	Thorn, No. 28	459	do	1,294		835	665	1,298	1,311	100	
	1 Shafer & Smathers	W. E. Finley, No. 40	417	Kirkwood-1	1,480	35	1,033	467	1,515	1,624		
	2 Shafer & Smathers	W. E. Finley, No. 27	447	Bridgeport-2	899	26	452	1,048	914	925		No record.
	3 Shafer & Smathers	W. E. Finley, No. 2	447	Kirkwood	1,455	35	1,037	463				Well abandoned.
	4 Shafer & Smathers	W. E. Finley, No. 16	448	Bridgeport-2	933	15	474	1,026	936			
	5 Shafer & Smathers	W. E. Finley, No. 4	456	Buchanan	1,258	15	799	701	1,258	1,273	150	
	6 Shafer & Smathers	W. E. Finley, No. 20	459	Kirkwood	1,504	19	1,045	455				
	7 Shafer & Smathers	W. E. Finley, No. 6	458	Buchanan	1,288	14	830	670	1,294	1,302	100	
	8 Shafer & Smathers	W. E. Finley, No. 19	459	do	1,350	21	891	699				
	9 Shafer & Smathers	W. E. Finley, No. 18	453	Kirkwood	1,510	21	1,051	449				Gas, 1,508 feet.
	10 Shafer & Smathers	W. E. Finley, No. 7	456	Buchanan	1,574	25	1,055	445	1,508			
	11 Shafer & Smathers	W. E. Finley, No. 24	448	Kirkwood	1,317	38	861	639	1,321			
	12 Shafer & Smathers	W. E. Finley, No. 1	449	Kirkwood	1,499	69	1,041	459		1,553		No record.
	13 Shafer & Smathers	W. E. Finley, No. 25	450	Kirkwood	1,485	33	1,035	465		1,553		
	14 Shafer & Smathers	W. E. Finley, No. 31	457	do	1,487	45	1,030	470	1,505	1,532		
	15 Shafer & Smathers	W. E. Finley, No. 31	462	do	1,523	23	1,061	439	1,528	1,546	600	
	16 Shafer & Smathers	W. E. Finley, No. 37	450	Kirkwood-1	1,492	31	1,042	458	1,507			
	17 Shafer & Smathers	W. E. Finley, No. 34	451	Kirkwood-2	1,532	26	1,062	418		1,558		
	18 Shafer & Smathers	W. E. Finley, No. 22	450	Buchanan	1,336	79	895	615				Salt water, 1,336 feet.
	19 Shafer & Smathers	W. E. Finley, No. 39	463	Kirkwood-1	1,546	24	1,095	405	1,547			
	20 Shafer & Smathers	W. E. Finley, No. 8	457	Kirkwood-2	1,587	16	1,136	364		1,612		
	21 Shafer & Smathers	W. E. Finley, No. 23	460	Kirkwood-1	1,522	22	1,072	428				
	22 Shafer & Smathers	W. E. Finley, No. 9	469	Kirkwood-2	1,596	20	1,116	384		1,608		No record.
	23 Shafer & Smathers	W. E. Finley, No. 17	476	Buchanan	1,340		883	617	1,350			
	24 Shafer & Smathers	W. E. Finley, No. 5	479	do	1,536	12	1,079	421		1,548		
	25 Shafer & Smathers	W. E. Finley, No. 38	476	do	1,537	78	1,077	423		1,616		
	26 Ohio	Diver, No. 6	470	Buchanan	1,317	22	848	652		1,349		
	27 Ohio	Diver, No. 4	471	do	1,345	15	899	631				
	28 Ohio	Diver, No. 13	473	do	1,580	64	1,104	393	1,580	1,644		
	29 Ohio	Diver, No. 1	473	Kirkwood	1,440	21	890	640	1,345	1,368	200	Salt water.
	30 Ohio	Diver, No. 9	470	Stray	1,678	33	1,099	539				
	31 Ohio	Diver, No. 15	466	Kirkwood-1	1,630	30	1,151	349	1,584			
				Kirkwood-2	1,840	30	1,151	349	1,600			
				McCluskey	1,286	17	819	681		1,890		
				Buchanan	1,270	30	799	701		1,306		
				do	1,270	65	797	703		1,300		
				do	1,345	30	872	698				Salt water, 1,345 feet.
				Buchanan	1,270	69	801	699				No record.
				Kirkwood	1,537	26	1,068	432		1,574		do.



## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur- face elevation— feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
N. W.	32	Lantz.	Burns, No. 9.	503	Bridgeport-3	960	35	457	1,043	.....	.....	125	Redrilled.
					Buchanan.	1,300	54	797	1,703	1,306	.....	.....	.....
					Kirkwood-2.	1,600	10	1,097	403	1,600	1,810	145	Green oil.
					McClosky.	1,775	35	1,272	228	.....	.....	.....	.....
					Buchanan.	1,312	37	1,799	701	1,376	.....	80	.....
S. W.	23	Lantz.	Burns, No. 11.	513	Kirkwood.	1,525	25	1,012	488	1,535	1,567	.....	.....
					Bridgeport-3	970	217	468	1,032	.....	.....	.....	.....
					"Gas".	1,415	.....	913	587	.....	.....	.....	.....
					Burns, No. 10.	.....	.....	431	1,069	945	.....	.....	.....
					Bridgeport-2	918	55	454	1,046	932	.....	210	Dry.
	35	Lantz.	Burns, No. 7.	476	do.	930	38	1,117	383	.....	.....	145	.....
					Burns, No. 4.	1,616	13	1,125	375	.....	.....	.....	.....
					Buchanan Hrs., No. 5.	499	.....	1,125	375	.....	.....	.....	.....
					Taber, No. 1.	1,623	37	1,125	375	.....	.....	.....	.....
					2 Big Four.	.....	.....	1,087	945	.....	.....	.....	.....
	3	Lantz.	Zeller, No. 4.	487	Bridgeport.	830	45	413	1,044	.....	.....	.....	.....
					do.	945	51	456	1,044	.....	.....	.....	.....
					do.	1,010	110	521	979	.....	.....	.....	.....
					Buchanan-1	1,304	25	815	685	.....	.....	.....	.....
					Buchanan-2	1,345	27	856	644	1,350	.....	180	.....
	4	Lantz.	Zeller, No. 5.	486	Kirkwood-1	1,512	28	1,023	477	1,522	.....	.....	.....
					Kirkwood-2	1,665	20	1,166	334	.....	.....	.....	.....
					Bridgeport.	900	56	427	1,073	933	987	145	.....
					Zeller, No. 3.	.....	.....	.....	.....	.....	.....	.....	.....
					Zeller, No. 16.	482	.....	.....	.....	.....	.....	.....	.....
	5	Lantz.	Zeller, No. 1.	475	Bridgeport-1	855	20	383	1,117	.....	.....	.....	.....
					Bridgeport-3	834	14	402	1,038	934	948	40	.....
					Bridgeport.	840	19	378	1,122	.....	.....	.....	.....
					do.	902	40	440	1,060	913	942	125	.....
					do.	830	32	379	1,131	.....	.....	.....	.....
	8	Lantz.	Zeller, Lot No. 1.	463	do.	917	194	467	1,083	.....	.....	.....	.....
					do.	.....	.....	.....	.....	.....	.....	.....	.....
					do.	.....	.....	.....	.....	.....	.....	.....	.....
					do.	.....	.....	.....	.....	.....	.....	.....	.....
					Buchanan.	1,372	.....	822	678	1,300	1,328	.....	.....



## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur- face ele- va- tion— feet.	Sand.					Name.	Depth to top—feet.			Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.	Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.												
17— N. E....	23 Ohio.....	Thorn, No. 7.	450	Buchanan.....	912	28	462	1,038	912	940	Well abandoned.									
	24 Ohio.....	Thorn, No. 27.	454	do.....	1,265	11	811	689	1,278	1,264	200									
	25 Ohio.....	Thorn, No. 19.	453	do.....	1,270	14	817	683	1,276	1,269	200									
	26 Ohio.....	Thorn, No. 8.	456	do.....	1,265	100	809	691	1,265	1,279	400									
	27 Ohio.....	Thorn, No. 30.	457	Kirkwood.....	1,256	28	799	701	1,256	1,226	Gas, 1,503 feet.									
	28 Ohio.....	Thorn, No. 10.	462	Buchanan.....	1,498	18	1,041	469	1,507	1,526	350									
	29 Ohio.....	Thorn, No. 31.	463	Kirkwood.....	1,263	18	801	699	1,264	1,281	200									
	30 Ohio.....	Thorn, No. 16.	454	Buchanan.....	1,505	24	1,042	458	1,510	1,534	Gas, 1,512 feet.									
	31 Ohio.....	Thorn, No. 18.	461	do.....	1,250	11	796	704	1,252	1,268	200									
	32 Ohio.....	Thorn, No. 15.	466	do.....	1,247	11	793	707	1,258	1,280	250									
	33 Ohio.....	Thorn, No. 11.	469	do.....	1,245	16	776	724	1,250	1,261	250									
	34 Ohio.....	Thorn, No. 33.	469	Kirkwood.....	1,242	26	773	727	1,245	1,261	150									
	35 Ohio.....	Thorn, No. 2.	473	Buchanan.....	1,521	26	1,052	448	1,530	1,547	Gas, 1,528 feet.									
	36 Ohio.....	Thorn, No. 32.	473	do.....	1,263	110	781	719	1,254	1,365	200									
	37 Ohio.....	Thorn, No. 12.	473	Kirkwood.....	1,534	24	1,051	439	1,540	1,561	Gas, 1,536 feet.									
	38 Ohio.....	Thorn, No. 4.	473	Bridgeport-3 Buchanan.....	941	19	468	1,032	960	960	Well abandoned.									
	39 Ohio.....	Thorn, No. 36.	473	do.....	1,250	100	777	723	1,250	1,267	Gas, 1,475 feet. Salt water 1,537 feet.									
40 Ohio.....	Thorn, No. 39.	465	Bridgeport.....	1,470	20	997	503	1,473	1,537	200										
41 Ohio.....	Thorn, No. 6.	465	Buchanan.....	880	110	415	1,085	1,246	1,275	200										
42 Ohio.....	Thorn, No. 37.	470	do.....	1,246	29	781	719	1,246	1,275	200										
43 Ohio.....	Thorn, No. 38.	479	Kirkwood.....	1,236	46	771	729	1,282	1,282	300										
44 Ohio.....	Thorn, No. 9.	486	Buchanan.....	1,523	67	1,033	447	1,535	1,562	Gas, 1,526 feet.										
45 Ohio.....	Thorn, No. 40.	491	Kirkwood.....	1,278	72	799	701	1,282	1,302	Gas, 1,547 feet.										
			Buchanan.....	1,540	32	1,061	439	1,543	1,572	250										
			Bridgeport.....	1,260	21	804	696	1,311	1,311	70										
			Buchanan.....	960	230	459	1,041	1,041	1,041	Gas, 1,560 feet.										
			Kirkwood.....	1,325	60	834	664	1,555	1,579	0										

18	Snowden Bros.	O'Donnel, No. 22	483	950	15	467	1,033	960	.....	Show	Salt water, 1,620 feet.
	do.		483	996	90	512	998	.....	.....	.....	.....
	do.		483	1,086	60	612	898	.....	.....	.....	.....
	Buchanan		483	1,280	22	797	703	1,282	1,302	100	Salt water, 1,020 feet.
19	Snowden Bros.	O'Donnel, No. 27	489	894	241	425	1,075	.....	.....	.....	Salt water, 1,316 feet.
	do.		489	1,298	60	819	681	1,308	.....	.....	.....
	Buchanan		489	1,431	84	1,012	988	1,542	.....	.....	.....
	Kirkwood-1		489	1,616	39	1,147	353	.....	.....	.....	.....
	Kirkwood-2		489	1,290	15	811	698	1,265	1,305	700	Salt water, 1,616 feet.
20	Snowden Bros.	O'Donnel, No. 3	490	1,015	100	523	977	.....	.....	.....	Salt water, 1,040 feet.
	do.		490	1,135	25	643	857	.....	.....	.....	.....
	Buchanan		490	1,319	76	827	673	1,325	.....	.....	.....
	Kirkwood		490	1,565	32	1,073	427	1,574	1,619	.....	Salt water, 1,355 feet.
21	Snowden Bros.	O'Donnel, No. 4	497	1,333	7	836	664	.....	.....	.....	.....
	do.		497	1,334	20	831	664	1,350	1,354	500	.....
	Buchanan		497	1,346	31	836	664	1,370	1,377	300	.....
22	Snowden Bros.	O'Donnel, No. 5	503	1,319	31	822	678	1,325	1,330	500	.....
	do.		503	1,310	10	829	671	1,320	1,335	500	.....
23	Snowden Bros.	O'Donnel, No. 10	481	940	.....	456	1,044	.....	.....	.....	Salt water, 1,060 feet.
	Bridgeport		481	1,312	19	528	672	.....	1,331	400	.....
24	Snowden Bros.	O'Donnel, No. 16	484	1,070	.....	570	980	.....	.....	.....	Salt water, 765, 1,070 and 1,220 feet.
	Bridgeport		484	1,327	19	527	673	.....	1,346	200	.....
25	Snowden Bros.	O'Donnel, No. 24	500	1,350	23	842	658	.....	1,378	300	.....
	do.		500	1,372	26	869	631	1,385	1,398	200	Salt water, 1,389 feet.
26	Snowden Bros.	O'Donnel, No. 13	503	1,080	70	529	971	.....	.....	.....	Salt water, 750 feet.
	do.		503	1,349	16	848	652	1,349	1,365	200	.....
27	Snowden Bros.	O'Donnel, No. 23	501	1,538	37	1,076	424	1,557	1,588	150	.....
	1 Shafer & Smathers	W. E. Finley, No. 32	462	1,534	50	1,061	419	1,550	1,596	.....	.....
	2 Shafer & Smathers	W. E. Finley, No. 30	453	1,569	39	1,109	391	1,572	1,621	25	.....
	3 Shafer & Smathers	W. E. Finley, No. 36	460	1,325	55	870	630	.....	.....	.....	Salt water, 1,365 feet.
	4 Shafer & Smathers	W. E. Finley, No. 29	455	1,565	5	1,110	390	.....	1,615	.....	.....
	5 Unknown	P. Caney, No. 1	472	.....	.....	.....	.....	.....	.....	.....	No record.
	6 Unknown	P. Caney, No. 2	453	.....	.....	.....	.....	.....	.....	.....	do.
	7 Unknown	P. Caney, No. 3	456	1,575	35	1,119	381	1,580	1,620	70	Gas, 1,573 feet.
	8 Ohio	A. Griggs, No. 3	456	1,585	33	1,120	371	1,590	1,630	15	Gas, 1,592 feet.
	9 Ohio	A. Griggs, No. 2	456	1,604	36	1,127	373	1,608	1,640	30	Gas, 1,606 feet.
	10 Ohio	A. Griggs, No. 1	477	.....	.....	.....	.....	.....	.....	.....	Salt water, 1,440 feet.
	11 Ohio	Ball, No. 3	478	1,630	26	1,152	348	1,630	2,015	.....	Salt water, 1,900 feet.
	12 Ohio	Ball, No. 2	458	1,566	31	1,108	392	1,569	1,597	60	Gas, 1,568 feet.
	13 Ohio	Ball, No. 1	455	1,596	28	1,140	380	1,597	1,623	20	Gas, 1,607 feet.
	1 Ohio	M. Stevens, No. 1	510	1,135	140	635	875	.....	.....	.....	.....
	do.		510	1,430	190	920	580	.....	.....	.....	.....
	do.		510	1,755	30	1,245	255	.....	.....	.....	.....
	do.		510	1,900	15	1,380	120	.....	.....	.....	.....
	do.		510	2,042	2	1,632	32	2,042	2,072	.....	Dry Show.



19 Ohio.	Rogers, No. 13.	527	do.	1,354	12	927	673	1,351	1,369	250	
20 Ohio.	Rogers, No. 12.	491	do.	1,319		828	672	1,328	1,358	275	
21 Ohio.	Rogers, No. 11.	490	do.	1,312	23	823	668	1,326	1,345	150	
22 Ohio.	Rogers, No. 9.	489	do.	1,312		823	671	1,325	1,352	250	
23 Ohio.	Rogers, No. 7.	504	do.	1,310	18	820	664	1,312	1,328	200	
	Bridgeport.		do.	1,274	16	794	708	1,027	1,040		
	Buchanan.		do.	1,283	30	794	708	1,285			Salt water.
	Stray.		do.	1,253	22	822	648				
21 Ohio.	Rogers, No. 18.	501	do.	1,533	15	1,074	821				
	Kirkwood.		do.	1,718	10	1,289	821	1,894	2,007	200	Gas, 1,894 feet.
	Tracy.		do.	1,740	10	1,289	821				
	McCloskey.		do.	1,894	21	1,383	714	1,288		350	
	Buchanan-1.		do.	1,312		811	683				
25 Ohio.	Rogers, No. 3.	497	Buchanan-2.	1,288		811	683	1,293	1,312		
26 Ohio.	Rogers, No. 5.	477	Buchanan.	1,308	26	811	683	1,293	1,314	250	
27 Ohio.	Rogers, No. 6.	478	do.	1,308	25	820	670	1,312	1,353	200	
28 Ohio.	Rogers, No. 4.	480	do.	1,302	22	820	678	1,310	1,354	250	
29 Ohio.	Rogers, No. 2.	473	do.	1,287		814	686	1,290	1,311	200	
30 Ohio.	Rogers, No. 1.	483	do.	1,290		797	703	1,285	1,286	100	
31 Ohio.	Rogers, No. 16.	483	do.	1,290	90	807	693				
	Kirkwood.		do.	1,508	16	1,086	414	1,580	1,752	80	Gas, 1,582 feet.
	School House Lot.		do.								No record.
1 Gray & Watson.		514	Bridgeport.	985	341	475	1,025				Salt water, 1,060 and 1,190 feet.
2 Snowden Bros.	O'Donnel, No. 20.	510	Buchanan.	1,332		822	678		1,342	400	
	Bridgeport.		do.	1,025	10	511	989				Salt water, 1,060 and 1,180 feet.
3 Snowden Bros.	O'Donnel, No. 19.	514	Bridgeport.	1,329	16	815	685	1,337	1,345	500	
	do.		do.	1,015		502	998				
4 Snowden Bros.	O'Donnel, No. 21.	513	Buchanan.	1,340	13	827	673	1,340			Salt water, 1,075 and 1,200 feet.
5 Snowden Bros.	O'Donnel, No. 22.	508	do.	1,354	13	848	652	1,354	1,367	300	Salt water, 820 and 1,090 feet.
	Bridgeport.		do.	1,000		494	1,006				
6 Snowden Bros.	O'Donnel, No. 17.	508	Stray.	1,210		704	796				Salt water, 1,015 feet.
	Buchanan.		do.	1,340	13	834	666		1,353	300	
	Bridgeport.		do.	960	80	450	1,050	990		Show	
7 Snowden Bros.	O'Donnel, No. 14.	510	Buchanan.	1,315	25	805	695	1,331	1,340	300	
	do.		do.	1,294	25	788	712	1,305	1,319	400	
8 Snowden Bros.	O'Donnel, No. 12.	508	Bridgeport.	805	10	307	1,193				
	do.		do.	962	86	464	1,036	970			Hole full of salt water, 990 feet.
	do.		do.	1,060	20	552	948				
	do.		do.	1,065	40	597	933				
	Stray.		do.	1,150	25	652	848				
9 Snowden Bros.	O'Donnel, No. 28.	498	Buchanan.	1,280	115	782	718	1,298			Salt water, 1,300 feet.
	Stray.		do.	1,425	13	927	573				
	Kirkwood-1.		do.	1,593	32	1,065	405	1,600		Show	
	Kirkwood-2.		do.	1,638	12	1,140	360				
	Kirkwood-3.		do.	1,678	52	1,178	322				
	Tracy.		do.	1,757	8	1,259	241				
	McCloskey.		do.	1,855	338	1,337	103	1,960	2,223	Show Limestone.	

S. E.

## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
17— S. E...	10	Snowden Bros.	O'Donnel, No. 15.	500	Bridgeport-3	1,000	28	500	1,703	.....	.....	400	.....
					Buchanan	1,267	953	707	1,026	.....	1,325		
					Bridgeport.	987	10	474	1,012	.....	.....		
					do.	965	160	516	984	.....	.....		
					do.	1,268	72	819	681	1,305	.....		
	11	Snowden Bros.	O'Donnel, No. 25.	479	Buchanan	1,506	11	1,027	473	1,506	.....	.....	Salt water, 1,060 feet. Salt water, 1,344 feet.
					Kirkwood-1	1,534	4	1,055	445	1,566	.....		
					Kirkwood-2	1,564	25	1,085	415	1,606	.....		
					Kirkwood-3	1,601	5	1,122	378	1,606	.....		
					Kirkwood-4	1,601	29	1,789	711	1,200	1,312		
	12	Snowden Bros.	O'Donnel, No. 8.	494	Buchanan	1,263	60	444	1,056	.....	.....	600	Some gas, 1,660 feet. Gas, 1,608 feet.
					Bridgeport-2	940	60	444	1,056	.....	.....		
					Stray	1,120	.....	624	876	.....	.....		
					Buchanan	1,281	10	785	715	1,291	1,305		
					Bridgeport	960	40	739	761	.....	.....		
	13	Snowden Bros.	O'Donnel, No. 7.	486	Buchanan	1,220	.....	479	699	.....	.....	400	Salt water, 1,010 feet. Salt water, 1,220 feet. Slate, 1,315 to 1,318 feet.
					Stray	1,220	.....	479	699	.....	.....		
					do.	1,318	33	801	663	.....	.....		
					Buchanan	1,282	31	468	663	.....	1,350		
					Bridgeport-2	949	.....	801	699	1,285	1,311		
	14	Snowden Bros.	O'Donnel, No. 18.	481	Buchanan	1,282	18	461	699	.....	.....	150	Salt water, 1,318 feet.
					Bridgeport	942	.....	461	699	.....	.....		
					do.	1,015	.....	634	986	.....	.....		
					Buchanan	1,326	46	844	686	1,235	.....		
					Kirkwood-1	1,600	25	1,079	421	1,640	.....		
	15	Snowden Bros.	O'Donnel, No. 1.	481	Kirkwood-2	1,628	20	1,147	353	1,628	.....	125	Salt water, 1,318 feet.
					Kirkwood-3	1,645	35	1,184	316	.....	.....		
					Tracey-1	1,710	15	1,230	271	.....	.....		
					Tracey-2	1,730	2	1,249	251	1,730	1,747		
					Stray	1,283	.....	802	698	.....	1,321		
	16	Snowden Bros.	O'Donnel, No. 26.	481	Bridgeport-3	1,000	28	500	1,703	.....	.....	600	Quit in line.
					Buchanan	1,267	953	707	1,026	.....	.....		
					Bridgeport.	987	10	474	1,012	.....	.....		
					do.	965	160	516	984	.....	.....		
					do.	1,268	72	819	681	1,305	.....		
	17	Snowden Bros.	O'Donnel, No. 2.	481	Buchanan	1,506	11	1,027	473	1,506	.....	.....	Salt water, 1,060 feet. Salt water, 1,344 feet.
					Kirkwood-1	1,534	4	1,055	445	1,566	.....		
					Kirkwood-2	1,564	25	1,085	415	1,606	.....		
					Kirkwood-3	1,601	5	1,122	378	1,606	.....		
					Kirkwood-4	1,601	29	1,789	711	1,200	1,312		

3	Snowden.....	Clevey, No. 1.....	510	Bridgeport..... do..... do..... do..... Stray..... Buchanan-1..... Buchanan-2.....	770 890 1,010 1,000 1,065 1,140 1,463 1,545 1,567	25 15 10 10 183 20 10 33	280 380 1,000 1,000 555 630 633 635 1,057	1,240 1,120 1,000 945 870 547 465 443	..... ..... ..... ..... ..... ..... 1,600	Salt water, 765 feet. Salt water, 905 feet. ..... Salt water, 1,140 feet. Gas sand. ..... Dry		
1	Ohio.....	School House Lot, No. 2.....	536	Bridgeport-2..... Bridgeport-3..... Bridgeport-1..... Bridgeport-3..... Bridgeport-1..... Bridgeport-2.....	912 1,020 515 1,060 830 992	21 25 20 8 25 11	376 484 283 528 830 455	1,124 1,016 1,217 972 1,207 1,045	..... 1,035 820 1,062 530 .....	..... 75 ..... 30 10 No record	..... ..... Salt water, 1,068 feet. ..... ..... No record	
4	Ohio.....	E. Combs (Acct. 1), No. 2.....	537	Kirkwood..... Bridgeport-1..... Bridgeport-3..... Kirkwood..... Bridgeport-1..... Bridgeport-3..... Kirkwood..... McClusky.....	1,412 854 1,037 1,420 1,443 ..... ..... .....	44 18 20 35 11 ..... ..... .....	890 333 516 899 1,122 ..... ..... .....	610 1,461 1,860 984 601 378 ..... .....	..... 1,461 ..... ..... 1,056 ..... ..... .....	..... 250 75 Gas Gas, 1,643 feet. 1,000,000 cu. ft. gas first day		
8	Ohio.....	E. Combs (Acct. 2), No. 3.....	538	Bridgeport-1..... Bridgeport-3..... Bridgeport-1..... Bridgeport-3..... Kirkwood..... Bridgeport-1..... Bridgeport-3..... Kirkwood..... McClusky.....	842 1,037 835 1,021 1,345 1,324 1,038 1,335 1,366 1,396 1,394 832 902 964 740 840 1,100 1,425 1,660 850 972 1,396 735 835 1,065 1,431 1,590 1,659	18 20 20 41 25 20 20 48 140 48 23 46 38 40 72 125 50 110 38 58 60 70 135 38 ..... .....	316 511 312 496 863 306 522 809 870 299 870 305 376 437 219 319 904 1,136 326 451 874 286 228 328 678 1,073 1,152	1,184 969 1,188 1,002 1,301 1,830 1,050 691 630 1,201 630 1,195 1,125 1,063 1,281 1,181 596 361 1,171 1,049 626 1,272 1,172 922 576 348 1,673	..... 100 ..... 50 ..... 40 Gas, 1,235 feet. ..... 30 Gas, 1,235 feet. ..... ..... Salt water, 1,115 feet. Gas, 1,660 feet. ..... Salt water, 745 feet. ..... Gas, 1,659 feet.			
12	Int'l Oil & Gas Co.....	E. Fyffe, No. 6.....	526	Bridgeport-1..... Bridgeport-3..... Bridgeport-1..... Bridgeport-3..... Kirkwood..... Bridgeport-1..... Bridgeport-3..... Kirkwood..... McClusky.....	842 1,037 835 1,021 1,345 1,324 1,038 1,335 1,366 1,396 1,394 832 902 964 740 840 1,100 1,425 1,660 850 972 1,396 735 835 1,065 1,431 1,590 1,659	18 20 20 41 25 20 20 48 140 48 23 46 38 40 72 125 50 110 38 58 60 70 135 38 ..... .....	316 511 312 496 863 306 522 809 870 299 870 305 376 437 219 319 904 1,136 326 451 874 286 228 328 678 1,073 1,152	1,184 969 1,188 1,002 1,301 1,830 1,050 691 630 1,201 630 1,195 1,125 1,063 1,281 1,181 596 361 1,171 1,049 626 1,272 1,172 922 576 348 1,673	..... 100 ..... 50 ..... 40 Gas, 1,235 feet. ..... 30 Gas, 1,235 feet. ..... ..... Salt water, 1,115 feet. Gas, 1,660 feet. ..... Salt water, 745 feet. ..... Gas, 1,659 feet.			
13	Int'l Oil & Gas Co.....	E. Fyffe, No. 1.....	526	Bridgeport-1..... Bridgeport-3..... Bridgeport-1..... Bridgeport-3..... Kirkwood..... Bridgeport-1..... Bridgeport-3..... Kirkwood..... McClusky.....	842 1,037 835 1,021 1,345 1,324 1,038 1,335 1,366 1,396 1,394 832 902 964 740 840 1,100 1,425 1,660 850 972 1,396 735 835 1,065 1,431 1,590 1,659	18 20 20 41 25 20 20 48 140 48 23 46 38 40 72 125 50 110 38 58 60 70 135 38 ..... .....	316 511 312 496 863 306 522 809 870 299 870 305 376 437 219 319 904 1,136 326 451 874 286 228 328 678 1,073 1,152	1,184 969 1,188 1,002 1,301 1,830 1,050 691 630 1,201 630 1,195 1,125 1,063 1,281 1,181 596 361 1,171 1,049 626 1,272 1,172 922 576 348 1,673	..... 100 ..... 50 ..... 40 Gas, 1,235 feet. ..... 30 Gas, 1,235 feet. ..... ..... Salt water, 1,115 feet. Gas, 1,660 feet. ..... Salt water, 745 feet. ..... Gas, 1,659 feet.			
14	Int'l Oil & Gas Co.....	E. Fyffe, No. 3.....	527	Bridgeport-1..... Bridgeport-2..... Bridgeport-3..... Bridgeport..... do..... Buchanan..... Kirkwood..... McClusky.....	842 1,037 835 1,021 1,345 1,324 1,038 1,335 1,366 1,396 1,394 832 902 964 740 840 1,100 1,425 1,660 850 972 1,396 735 835 1,065 1,431 1,590 1,659	18 20 20 41 25 20 20 48 140 48 23 46 38 40 72 125 50 110 38 58 60 70 135 38 ..... .....	316 511 312 496 863 306 522 809 870 299 870 305 376 437 219 319 904 1,136 326 451 874 286 228 328 678 1,073 1,152	1,184 969 1,188 1,002 1,301 1,830 1,050 691 630 1,201 630 1,195 1,125 1,063 1,281 1,181 596 361 1,171 1,049 626 1,272 1,172 922 576 348 1,673	..... 100 ..... 50 ..... 40 Gas, 1,235 feet. ..... 30 Gas, 1,235 feet. ..... ..... Salt water, 1,115 feet. Gas, 1,660 feet. ..... Salt water, 745 feet. ..... Gas, 1,659 feet.			
15	Int'l Oil & Gas Co.....	E. Fyffe, No. 12.....	521	Bridgeport-1..... Bridgeport-3..... Bridgeport-1..... Bridgeport-3..... Kirkwood..... Bridgeport-1..... Bridgeport-3..... Kirkwood..... McClusky.....	842 1,037 835 1,021 1,345 1,324 1,038 1,335 1,366 1,396 1,394 832 902 964 740 840 1,100 1,425 1,660 850 972 1,396 735 835 1,065 1,431 1,590 1,659	18 20 20 41 25 20 20 48 140 48 23 46 38 40 72 125 50 110 38 58 60 70 135 38 ..... .....	316 511 312 496 863 306 522 809 870 299 870 305 376 437 219 319 904 1,136 326 451 874 286 228 328 678 1,073 1,152	1,184 969 1,188 1,002 1,301 1,830 1,050 691 630 1,201 630 1,195 1,125 1,063 1,281 1,181 596 361 1,171 1,049 626 1,272 1,172 922 576 348 1,673	..... 100 ..... 50 ..... 40 Gas, 1,235 feet. ..... 30 Gas, 1,235 feet. ..... ..... Salt water, 1,115 feet. Gas, 1,660 feet. ..... Salt water, 745 feet. ..... Gas, 1,659 feet.			
16	Int'l Oil & Gas Co.....	E. Fyffe, No 4.....	521	Bridgeport-1..... Bridgeport-3..... Kirkwood..... Bridgeport..... do..... Buchanan..... Kirkwood..... Tracy..... McClusky.....	842 1,037 835 1,021 1,345 1,324 1,038 1,335 1,366 1,396 1,394 832 902 964 740 840 1,100 1,425 1,660 850 972 1,396 735 835 1,065 1,431 1,590 1,659	18 20 20 41 25 20 20 48 140 48 23 46 38 40 72 125 50 110 38 58 60 70 135 38 ..... .....	316 511 312 496 863 306 522 809 870 299 870 305 376 437 219 319 904 1,136 326 451 874 286 228 328 678 1,073 1,152	1,184 969 1,188 1,002 1,301 1,830 1,050 691 630 1,201 630 1,195 1,125 1,063 1,281 1,181 596 361 1,171 1,049 626 1,272 1,172 922 576 348 1,673	..... 100 ..... 50 ..... 40 Gas, 1,235 feet. ..... 30 Gas, 1,235 feet. ..... ..... Salt water, 1,115 feet. Gas, 1,660 feet. ..... Salt water, 745 feet. ..... Gas, 1,659 feet.			
17	Int'l Oil & Gas Co.....	E. Fyffe, No. 11.....	507	Buchanan..... Tracy..... McClusky.....	1,065 1,431 1,590 1,659	135 38 ..... .....	678 1,073 1,152	922 576 348 1,673	..... ..... ..... .....	..... ..... ..... .....	..... ..... ..... .....	..... ..... ..... .....



## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
19— S. E.	1	Ohio.	LeGrand, No. 1.	472	1,125	140	653	847				
					1,120	190	1,108	852				
					1,640	25	1,168	332				Salt water, 1,640 feet.
20— N. E.	1	Ohio.	E. Lutz, No. 1.	500	1,912	25	1,440	60	2,005	2,005	Dry	
					1,080	140	580	920				
					1,385	103	865	905			15	Gas, 1,946 to 1,950 feet.
	2	Ohio.	Millhouse, No. 1.	512	1,605	25	1,103	385	1,605	2,000		
					1,792	102	866	634				
					1,378	16	1,193	307				Gas, 1,946 to 1,950 feet.
	3	Ohio.	Miller, No. 1.	506	1,705	7	1,398	608	1,721	1,721	Dry	
					1,398	7	892	608				Salt water, 1,719 feet.
					1,383	7	846	654				Well abandoned.
	4	Ohio.	Miller, No. 6.	517	1,398	7	892	608	1,370	1,370	300	
					1,398	7	846	654				
					1,410	60	854	606	1,401	1,403	25	Salt water, 1,403 feet.
	6	Ohio.	Miller, No. 18.	516	1,771	12	1,255	245	1,783	1,783	Gas	
					1,371	20	861	639				Gas, 1,771 feet. Salt water, 1,740 feet.
					1,364	7	846	654	1,366	1,391		
N. W.	7	Ohio.	Miller, No. 15.	510	1,352	15	831	669	1,367	1,367	350	
					1,352	15	831	669				Salt water, 1,740 feet.
					1,346	6	830	670	1,346	1,346		Well abandoned.
	10	Ohio.	Miller, No. 19.	516	1,810	10	824	206				
					1,343	10	828	672	1,347	1,353	325	
					1,351	12	839	661				
	11	Ohio.	Miller, No. 5.	515	1,355	25	835	665	1,377	1,383	400	
					1,374	12	867	633	1,384	1,390	200	
					1,381	2	838	642	1,381	1,386	150	
	2	Ohio.	Miller, No. 13.	507	1,381	2	838	642	1,379	1,383		
					1,382	24	837	663	1,379	1,386	250	
					1,358	6	844	656	1,364	1,364	200	
	5	Ohio.	Miller, No. 11.	525	1,383	7	867	633				
					1,383	7	867	633				
					1,406	6	876	634	1,412	1,412	Dry	
S. W.	8	Ohio.	Miller, No. 2.	530								Drilling.



## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
29—	S. W.	1 Snowden Bros.	H. K. Seed, No. 3.	513	Bridgeport.	880	35	377	1,123			Hole full water, 903 feet.
					do.	1,040	50	327	973			Hole full water, 1,140 feet.
					do.	1,130	252	617	883			Salt water, 1,591 feet.
					Buchanan-1.	1,518	73	1,035	483			Hole full water, 1,640 feet.
					Buchanan-2.	1,640	47	1,127	373			Red rock, 1,728 and 1,803 feet.
30—	S. W.	1 Snowden Bros.	H. K. Seed, No. 3.	513	Stray.	1,703	22	1,190	310			Salt water, 1,822 feet.
					do.	1,810	13	1,297	203			Salt water, 1,872 feet.
					do.	1,863	7	1,352	148			Salt water, 1,947 feet.
					Kirkwood-1.	1,894	22	1,351	119			Salt water, 1,872 feet.
					Kirkwood-2.	1,923	25	1,409	91			Salt water, 1,947 feet.
N. E.	1 Ohio.	Longan, No. 1.	Longan, No. 1.	499	Kirkwood-3.	1,932	19	1,469	31	1,932	2,001	Salt water, 1,947 feet.
					Bridgeport.	1,000	310	501	999			Salt water, 1,650 and 1,700 feet.
					do.	1,450	175	951	549			Salt water, 1,650 and 1,700 feet.
					Stray.	1,775	15	1,276	224			50 Gas, 1,915 feet.
					Kirkwood.	1,911	17	1,412	89	1,911	1,933	Hole full water, 916 feet.
S. E.	2 Snowden Bros.	McCarr, No. 1.	McCarr, No. 1.	503	Bridgeport.	868	45	835	1,133			Salt water, 1,045 feet.
					do.	1,040	18	357	963			Salt water, 1,420 feet.
					do.	1,120	210	617	853			Salt water, 1,522 feet.
					Stray.	1,353	9	890	620			Salt water, 1,708 feet.
					Buchanan-1.	1,415	35	912	388			Salt water, 1,880 and 1,928 feet.
S. E.	1 Mahugh.	Shepherd, No. 2.	Shepherd, No. 2.	509	Buchanan-2.	1,520	25	1,017	483			No record.
					Buchanan-3.	1,594	59	1,091	409			do.
					Stray.	1,687	21	1,194	316			
					do.	1,800	8	1,297	203			
					Kirkwood-1.	1,865	71	1,862	138			
S. E.	2 Mahugh.	Shepherd, No. 1.	Shepherd, No. 1.	497	Kirkwood-2.	1,905	14	1,455	46	1,902	1,972	
					do.							



## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
31—  N. W.	11	Central Refining Co.	P. King, No. 9.	477	Bridgeport.	775	45	298	1,202			Salt water, 1,020 feet.
					do.	945	103	468	1,032	945		Salt water.
					do.	1,070	50	593	907			do.
					Buchanan.	1,235	50	738	742			
					Stray	1,313	5	838	662		Show	
					Gas.	1,400	15	923	577	1,400		
					Kirkwood-1.	1,481	37	1,004	496	1,481		
					Kirkwood-2.	1,535	5	1,008	442			
					Kirkwood-3.	1,565	7	1,088	412			
					Tracey.	1,585	12	1,108	392	1,589	1,074	Gas, 1,589 feet.
	12	Central Refining Co.	P. King, No. 1.	488	Stray	1,650		1,153	347			
					Kirkwood.	1,515		1,277	473	1,530	75	Salt water.
					Bridgeport.	1,065	70	513	987			
					Buchanan.	1,210	70	718	782			
					Gas.	1,445	15	853	547			Salt water.
					Kirkwood.	1,534	31	1,042	458	1,565		
					Bridgeport.	785	80	288	1,202		Show	
					do.	980	60	493	1,007	995		Hard sand.
					do.	1,052	83	565	935			
					Buchanan-1.	1,135	145	658	842			
	13	Central Refining Co.	P. King, No. 5.	487	Buchanan-2.	1,305	35	813	682			
					Gas.	1,421	15	834	566			
					do.	1,494	30	1,007	493	1,494	30	
					Kirkwood.	1,558	30	1,044	456			
					do.	765	35	276	1,224			
					Bridgeport.	620	10	401	1,099	920	Show	
					do.	1,020	100	501	999			Salt water.
					Stray	1,176	5	656	844			
					Buchanan-1.	1,235	85	716	784			
					Buchanan-2.	1,443	7	924	578			
	16	Central Refining Co.	P. King, No. 7.	519	Kirkwood.	1,410	30	991	1,630			

26 Silurian	Crump (28), No. 4	510	do.	755	45	215	1,255	850	.....	Show	.....
			do.	850	25	340	1,160	.....	.....		.....
			Buchanan	975	65	465	1,035	.....	.....	Salt water	.....
			"Gas"	1,090	45	590	920	.....	.....		.....
			Kirkwood-1	1,305	42	705	705	.....	.....		.....
			Kirkwood-2	1,408	18	898	602	1,408	.....		.....
27 Silurian	Crump (28), No. 2	520	Kirkwood-2	1,455	8	945	555	.....	1,471	247	No record. Well abandoned.
			Bridgeport	.....	.....	.....	.....	.....	.....	.....	.....
			Buchanan	890	15	348	1,152	.....	.....		Salt water, 1,140 feet.
			"Gas"	1,100	130	588	912	.....	.....		.....
			Kirkwood	1,355	10	843	657	.....	.....	400	Salt water.
			Bridgeport	1,428	60	916	584	1,438	.....		.....
			Kirkwood	975	30	478	1,022	.....	.....		Salt water.
			Bridgeport	1,465	12	968	532	.....	.....		.....
			Buchanan	960	.....	361	1,139	875	.....		Salt water, 1,105 feet.
			Stray	1,165	15	666	824	.....	.....		.....
			"Gas"	1,280	15	781	719	.....	.....		Gas, 1,362 feet.
			Kirkwood-1	1,362	26	968	532	1,362	1,390		.....
			Kirkwood-2	1,477	5	983	617	.....	.....	300	.....
			McClusky	1,601	.....	1,197	303	.....	1,704		.....
			Bridgeport	740	40	226	1,264	.....	.....		.....
			do.	838	10	332	1,168	.....	.....		.....
			Kirkwood-1	1,410	32	906	594	.....	.....		.....
			Kirkwood-2	1,455	11	951	549	.....	.....		.....
			McClusky	1,640	3	1,136	364	.....	.....		.....
			Bridgeport	975	35	475	1,025	.....	.....		Salt water.
			Buchanan	1,168	127	658	832	.....	.....		Red rock, 1,265 and 1,434 feet.
			Kirkwood	1,444	20	944	556	.....	.....	600	.....
			McClusky	1,674	11	174	326	1,674	1,685		.....
			Bridgeport	1,885	31	539	1,161	.....	.....		.....
			Kirkwood-1	1,465	15	839	561	.....	.....		.....
			Kirkwood-2	1,480	20	959	541	.....	.....	500	.....
			McClusky	1,683	6	1,157	343	.....	1,702		.....
			Bridgeport	1,868	10	348	1,152	.....	.....	10	.....
			Buchanan	990	15	358	1,142	.....	.....		Salt water.
			"Gas"	1,090	165	598	912	.....	.....		Red rock, 1,265 and 1,432 feet.
			Kirkwood	1,360	30	858	642	.....	.....		.....
			McClusky	1,439	33	937	583	1,469	.....		.....
			Bridgeport	1,630	52	1,128	372	1,672	1,682	300	Gas, 1,672 feet.
			"Gas"	846	30	325	1,175	.....	.....		.....
			Kirkwood-1	1,351	35	830	670	.....	.....	200	Gas, 1,353 feet.
			Kirkwood-2	1,431	25	910	590	.....	.....		.....
			McClusky	1,462	23	941	559	.....	.....	300	.....
			Bridgeport-1	1,672	12	1,151	349	.....	.....		.....
			Bridgeport-2	767	4	250	1,250	.....	.....		.....
			Bridgeport-3	845	17	328	1,172	845	.....		.....
			Bridgeport	1,064	9	547	853	.....	.....		Gas, 1,064 feet.
			Crump (28), No. 14	1,980	21	459	1,041	980	.....		.....

## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur- face ele- va- tion— feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
31— N. E..	40	Ohio.....	McCleave, No. 4.....	518	Kirkwood..... McClosky..... Kirkwood..... Kirkwood..... McClosky..... Kirkwood..... Bridgeport-2..... Bridgeport-3..... Kirkwood..... Kirkwood..... McClosky..... Bridgeport..... do..... Kirkwood..... do.....<								

55	Ohio.....	Clark, No. 16.....	531	Bridgeport.....	1,025	29	504	966	1,380	1,406	100	.....
56	Ohio.....	Clark, No. 15.....	520	do.....	1,372	34	851	646	1,365	1,426	125	.....
57	Ohio.....	Clark, No. 2.....	522	Bridgeport-1.....	1,812	34	872	628	1,365	1,426	Show	.....
58	Ohio.....	Clark, No. 13.....	521	Bridgeport-2.....	905	13	383	1,117	982	1,007	.....	.....
59	Ohio.....	Clark, No. 14.....	523	Bridgeport-3.....	1,025	25	504	966	1,030	1,054	170	.....
60	Ohio.....	Clark, No. 10.....	523	do.....	1,392	38	869	631	1,385	1,439	250	Gas, 1,380 feet.
61	Ohio.....	Clark, No. 1.....	523	Bridgeport-1.....	1,040	23	517	983	1,040	1,063	200	.....
62	Ohio.....	Clark, No. 3.....	528	Bridgeport-2.....	826	10	393	1,197	.....	.....	.....	.....
1	Ohio.....	Delaney, No. 6.....	502	Bridgeport-3.....	911	20	388	1,112	.....	.....	.....	.....
2	Ohio.....	Delaney, No. 1.....	500	Bridgeport-1.....	881	56	453	1,042	881	.....	.....	.....
3	Ohio.....	Delaney, No. 5.....	502	Bridgeport-2.....	820	25	391	1,119	.....	.....	.....	.....
4	Ohio.....	Delaney, No. 4.....	473	Bridgeport-3.....	1,000	25	391	1,119	.....	.....	.....	.....
5	Ohio.....	Delaney, No. 3.....	499	Kirkwood.....	1,437	30	472	1,028	1,000	1,030	.....	.....
6	Ohio.....	Delaney, No. 7.....	500	McClosky.....	1,655	15	835	565	1,445	.....	.....	Flowing well.
7	Ohio.....	Adkins, No. 1.....	483	do.....	1,354	16	854	646	1,655	1,670	450	Gas, 1,354 feet.
8	Ohio.....	Delaney, No. 8.....	483	do.....	1,433	38	933	581	1,433	.....	40	.....
9	Ohio.....	Delaney, No. 2.....	482	Kirkwood-1.....	1,421	9	919	581	1,430	.....	.....	Gas, 1,421 feet.
				Kirkwood-2.....	1,437	38	935	583	1,437	1,475	400	.....
				do.....	1,343	12	870	630	1,343	.....	.....	.....
				do.....	1,440	26	967	533	1,440	1,471	250	.....
				do.....	1,426	28	937	533	1,426	1,460	65	.....
				do.....	1,438	40	938	563	1,411	.....	25	.....
				do.....	1,656	11	1,558	344	1,422	1,673	42	.....
				do.....	1,422	14	859	561	1,453	1,486	50	.....
				do.....	1,433	28	970	530	1,453	.....	.....	Gas, 1,395 feet.
				do.....	1,396	3	913	587	1,395	.....	.....	Gas, 1,395 feet.
				do.....	1,450	21	965	532	1,450	.....	80	Salt water, 1,030 feet.
				do.....	1,755	35	201	1,209	.....	.....	.....	Salt water
				do.....	845	5	381	1,119	.....	.....	.....	.....
				do.....	860	5	398	1,104	.....	.....	.....	.....
				do.....	920	80	456	1,044	925	.....	.....	.....
				do.....	1,015	25	551	949	.....	.....	.....	.....
				do.....	1,049	43	578	922	.....	.....	.....	.....
				do.....	1,130	50	666	834	.....	.....	.....	Salt water
				do.....	1,218	50	754	746	.....	.....	.....	do
				do.....	1,390	15	916	584	1,390	.....	Show	.....
				do.....	1,458	41	994	506	1,478	.....	.....	.....
				do.....	1,525	5	1,061	439	.....	.....	.....	.....
				do.....	1,551	22	1,087	413	1,551	.....	Show	.....
				do.....	1,602	3	1,138	363	.....	.....	.....	.....
				do.....	1,688	5	1,224	276	1,688	1,683	Show	.....
10	Central Refining Co.....	P. King, No. 8.....	464	McClosky.....	1,688	5	1,224	276	1,688	1,683	Show	.....



## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
31—	N. W.	11 Central Refining Co.	P. King, No. 9.	477	Bridgeport.	775	45	298	1,202	945		Salt water, 1,020 feet.
					do.	945	105	468	1,032			Salt water.
					do.	1,070	50	593	907			do.
					Buchanan.	1,235	50	758	742		Show	
					Stray.	1,315	5	838	682			
					Gas.	1,400	15	923	572	1,400		
					Kirkwood-1	1,481	37	1,004	496	1,485		
					Kirkwood-2	1,531	5	1,053	442			
					Kirkwood-3	1,585	7	1,088	412			
					Tracey.	1,585	12	1,088	392	1,589		Gas, 1,539 feet.
					Stray.	1,630		1,153	342			
					Kirkwood	1,515		1,027	475		75	
		12 Central Refining Co.	P. King, No. 1.	488	Bridgeport.	1,005	75	718	989	1,530		Salt water.
					Buchanan.	1,210	70	718	789			Salt water.
					"Gas."	1,445	15	933	542			Salt water.
					Kirkwood.	1,531	30	1,042	456	1,565		
					Bridgeport.	1,785	80	798	1,202		Show	
					do.	1,860	60	493	1,007	995		Hard sand.
					do.	1,852	80	565	937			
					Buchanan-1	1,145	14	658	842			
		14 Central Refining Co.	P. King, No. 5.	487	Buchanan-2	1,145	15	818	842			
					do.	1,205	35	818				
					Gas.	1,421	30	1,007	493	1,494		
					Kirkwood.	1,491	30	1,044	453	1,524	30	
		15 Central Refining Co.	P. King, No. 3.	514	do.	1,553	35	775	1,204			
					Bridgeport.	1,708	35	407	1,204		Show	
					do.	1,920	10	407	1,099	920		Salt water.
					do.	1,920	100	521	999			
		16 Central Refining Co.	P. King, No. 7.	519	Stray.	1,175	8	656	844			
					Buchanan-1	1,235	86	716	784			
					Buchanan-2.	1,443	7	924	578			
					Kirkwood.	1,510	36	901	500	1,530		



## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.	Name.				
31—S. W.	16 Ohio.....	Kimmel, No. 15.....	Kimmel, No. 15.....	539	1,550	38	1,011	489	1,552	1,597	75	Gas, 1,555 feet.	
	17 Ohio.....	Kimmel, No. 18.....	Kimmel, No. 18.....	537	1,555	31	1,018	482	1,558	1,596	75	Gas, 1,555 feet.	
	18 Ohio.....	Kimmel, No. 9.....	Kimmel, No. 9.....	544	1,543	20	999	501	1,545	1,569	25	Gas, 1,555 feet.	
	1 Ohio.....	S. Abernathy, No. 3.....	Kirkwood-1.....	550	1,545	12	995	505	1,551	1,586	25	Gas, 1,555 feet.	
S. E.	2 McAniff.....	Cullison, Lot No. 1.....	Kirkwood-2.....	552	1,563	16	1,013	487	1,568	1,596	No record.		
	3 Ohio.....	Kimmel, No. 10.....	Kirkwood.....	556	1,522	38	966	534	1,540	1,567	25	No record.	
	4 Ohio.....	E. Combs, No. 5.....	"Gas".....	561	1,410	(?)	100	849	651	1,528	50	Gas, 1,555 feet.	
	5 Ohio.....	E. Combs, No. 4.....	Bridgeport.....	546	890	20	314	1,186	890	1,528	25	Gas, 1,555 feet.	
	6 Ohio.....	E. Combs, No. 2.....	Kirkwood.....	546	1,458	5	912	888	1,458	1,458	25	Gas, 1,555 feet.	
	7 Ohio.....	E. Combs, No. 7.....	Bridgeport.....	546	995	15	449	1,051	1,000	1,000	Gas	Gas, 1,375 feet.	
	8 D. Quinlan.....	A. Combs, No. 1.....	"Gas".....	525	1,375	11	829	364	1,699	1,717	300	No record.	
	9 D. Quinlan.....	A. Combs, No. 3.....	McClusky-1.....	525	1,662	6	1,136	347	1,699	1,717	300	No record.	
	10 D. Quinlan.....	A. Combs, No. 2.....	McClusky-2.....	521	1,699	9	1,153	347	1,699	1,717	300	No record.	
	11 Ohio.....	E. Combs, No. 8.....	McClusky-1.....	520	1,642	4	1,122	378	1,642	1,664	Gas	Gas, 1,340 feet.	
	12 Ohio.....	E. Combs, No. 3.....	McClusky-2.....	526	1,660	4	1,140	386	1,660	1,684	Gas	Gas, 1,340 feet.	
	13 Ohio.....	E. Combs, No. 6.....	Kirkwood-1.....	525	1,340	10	814	586	1,440	1,440	17	Gas, 1,340 feet.	
	14 Ohio.....	E. Combs, No. 1.....	Kirkwood-2.....	525	1,439	9	914	586	1,439	1,439	140	Gas, 1,340 feet.	
15 Ohio.....	E. Combs, No. 9.....	"Gas".....	526	1,453	11	928	572	1,453	1,533	Gas	Gas, 1,355 feet.		
16 Ohio.....	Kimmel, No. 16.....	Kirkwood.....	534	1,345	25	881	586	1,370	1,370	Gas	Gas, 1,355 feet.		
17 Ohio.....	Kimmel, No. 13.....	McClusky-1.....	525	1,460	42	914	586	1,460	1,700	75	Gas, 1,685 feet.		
		Kirkwood-1.....	534	1,685	10	1,491	331	1,690	1,700	75	Gas, 1,685 feet.		
		Kirkwood-2.....	534	1,450	20	916	584	1,450	1,450	60	Gas, 1,685 feet.		
		Kirkwood-1.....	525	1,490	25	916	584	1,490	1,490	80	Gas, 1,685 feet.		
		Kirkwood-2.....	525	1,462	10	1,468	332	1,462	1,462	80	Gas, 1,685 feet.		
		Kirkwood-1.....	525	1,418	12	963	507	1,418	1,420	80	Gas, 1,685 feet.		
		Kirkwood-2.....	525	1,432	20	907	553	1,432	1,432	80	Gas, 1,685 feet.		



## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Altitude below sea level—feet.	Altitude above datum plane—feet.	Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Level—feet.	Altitude above datum plane—feet.						
32—														
N. E.	20	Ohio.....	Griggs, No. 19 .....	471	Bridgeport.....	810	110	339	1,161	810				
N. W.	1	Ohio.....	R. Middaugh, No. 10 .....	524	do. Kirkwood.....	944	60	473	1,027	944			117	
	2	Ohio.....	R. Middaugh, No. 12 .....	519	do. do. ....	1,431	19	960	540	1,431			80	
	3	Ohio.....	R. Middaugh, No. 7 .....	528	do. do. ....	1,364	39	840	660	1,424			100	Gas, 1,380 feet.
	4	Ohio.....	R. Middaugh, No. 16 .....	497	do. Bridgeport.....	1,360	57	841	659	1,365			25	
	5	Ohio.....	R. Middaugh, No. 15 .....	495	do. do. ....	1,023	20	299	1,201	828				
	6	Ohio.....	R. Middaugh, No. 2 .....	518	do. do. ....	1,360	30	507	993	1,360			60	
	7	Ohio.....	R. Middaugh, No. 8 .....	494	do. do. ....	1,360	30	863	637	1,360			75	
	8	Ohio.....	R. Middaugh, No. 14 .....	496	do. do. ....	968	62	473	1,027	968				
	9	Ohio.....	R. Middaugh, No. 6 .....	495	Kirkwood.....	825		307	1,193					
	10	Ohio.....	R. Middaugh, No. 13 .....	498	do. do. ....	1,055		306	1,194	800			120	Gas, 911 feet.
	11	Ohio.....	R. Middaugh, No. 5 .....	485	do. do. ....	911	27	417	1,083	911			60	Gas, 1,345 feet.
	12	Ohio.....	R. Middaugh, No. 3 .....	483	Kirkwood.....	1,347	33	851	649	1,350				
	13	Ohio.....	R. Middaugh, No. 4 .....	479	do. do. ....	800	15	305	1,195	810				
	14	Ohio.....	R. Middaugh, No. 9 .....	495	do. do. ....	1,035	9	540	960				100	Gas, 1,352 feet.
	15	Ohio.....	R. Middaugh, No. 1 .....	498	do. do. ....	1,349	38	863	637	1,350			70	
	16	Ohio.....	R. Middaugh, No. 11 .....	493	Bridgeport.....	788	27	303	1,197	788				
					do. do. ....	1,014	24	299	1,201	794				
					do. do. ....	1,792	39	421	1,079	915			80	
					do. do. ....	904		298	1,202					
					do. do. ....	777	20	298	1,202					
					do. do. ....	904	13	426	1,075	908			80	
					do. do. ....	1,350	33	855	645	1,350			135	Gas, 1,360 feet.
					do. do. ....	795	17	307	1,193					
					do. do. ....	919	4	431	1,099					
					do. do. ....	1,342	38	849	651	1,345			75	Gas, 1,340 feet.



## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
32— N. W.		26 Snowden Bros.	Perkins, No. 25.	498	Bridgeport.....	760	15	263	1,238	.....	.....	.....
					do.....	960	55	462	1,038	.....	.....	Salt water, 1,060 feet.
					do.....	1,020	70	522	978	.....	.....	.....
					Buchanan.....	1,100	50	602	898	.....	.....	.....
					Kirkwood-1.....	1,356	9	858	642	.....	.....	.....
					Kirkwood-2.....	1,369	13	871	629	1,372	1,408	.....
					Bridgeport.....	879	116	355	1,115	.....	.....	.....
					Kirkwood.....	1,348	34	834	666	1,350	1,383	Gas, 1,350 feet.
					do.....	810	24	800	1,200	.....	.....	.....
					Bridgeport.....	993	13	433	1,017	.....	.....	.....
					Petty, No. 1.....	510	31	497	1,003	1,008	.....	.....
					Petty, No. 5.....	1,007	25	846	654	1,355	1,390	Gas, 1,360 feet.
					Petty, No. 9.....	1,350	23	481	1,019	965	100	.....
					Petty, No. 6.....	985	36	855	645	1,360	1,396	.....
					Petty, No. 10.....	1,360	37	837	1,013	995	50	.....
S. W.		1 Snowden Bros.	Perkins, No. 3.	505	Bridgeport.....	992	38	487	1,013	995	.....	.....
					do.....	828	15	305	1,195	834	30	.....
					do.....	1,022	28	499	1,001	1,040	.....	.....
					Petty, No. 4.....	523	28	499	1,001	1,040	.....	.....
					do.....	900	20	375	1,125	902	40	.....
					Petty, No. 2.....	1,023	18	498	1,002	1,025	70	Gas, 1,287 feet.
					Petty, No. 7.....	529	56	853	667	1,362	1,423	.....
					Kirkwood.....	1,362	56	853	667	1,362	1,423	.....
					do.....	809	.....	302	1,198	.....	.....	.....
					Bridgeport.....	910	10	403	1,077	.....	.....	.....
					do.....	1,080	7	523	977	.....	.....	.....
					do.....	800	5	295	1,205	805	150	Salt water, 1,037 feet.
					do.....	870	40	355	1,135	875	Show	.....
					do.....	800	21	427	1,073	.....	.....	.....
					do.....	932	21	427	1,073	.....	.....	.....
					do.....	1,035	95	530	715	.....	.....	Salt water, 1,045 feet.
					Gas.....	1,360	20	785	634	1,378	.....	Gas, 1,283 feet.
					Kirkwood.....	1,371	30	865	634	1,378	.....	.....
					Stray.....	1,478	16	979	597	1,490	1,515	.....

3	Snowden Bros.	Perkins, No. 2.	480	Bridgeport.	778 889 1,010 780 885 895 1,040 1,264 1,328 1,389 850 875 920 1,020	327 339 20 26 40 25 90 9 6 51 19 15 42 85	298 339 330 302 372 445 770 774 848 859 905 945 541	1,202 1,110 870 870 1,251 1,055 936 716 452 1,094 1,129 1,104 1,099 959	100	Slats, 798 to 800 feet.
4	Snowden Bros.	Perkins, No. 21.	480	"Gas" Kirkwood-1 Kirkwood-2 Bridgeport "do." "do." "do." "do." "do." "do." "do." "do."	1,040 1,264 1,328 1,389 850 875 920 1,020	90 9 6 51 19 15 42 85	770 774 848 859 905 945 541	1,202 1,110 870 870 1,251 1,055 936 716 452 1,094 1,129 1,104 1,099 959	148	Salt water, 1,065 feet. Gas, 1,270 feet.
5	Snowden Bros.	Perkins, No. 17.	479	Buchanan-1 Buchanan-2 "Gas" Kirkwood Tracey-1 Tracey-2 Tracey-3 McCluskey Bridgeport "do." "do." "Gas"	1,108 1,138 1,223 1,350 1,459 1,475 1,570 817 938 1,012 1,238	28 22 25 45 10 25 25 1,091 8 10 26 34	629 659 841 871 639 971 995 504 1,181 339 1,163 1,044 978 742	871 871 1,351 639 1,461 504 609 1,686 1,714		Salt water, 1,060 and 1,075 feet.
6	Snowden Bros.	Perkins, No. 9.	480	Bridgeport "do." "do." "Gas"	810 932 1,012 1,238	15 103 20 30	309 431 1,099 1,193	815 810		Gas, 1,238 feet. 28,100,000 cu. ft. daily
7	Snowden Bros.	Perkins, No. 1.	501	Bridgeport "do." "do." "do." "do."	810 932 1,012 1,238	15 103 20 30	309 431 1,099 1,193	815 810	Show	
8	Snowden Bros.	Perkins, No. 20.	499	"Gas" Kirkwood Tracey Bridgeport and Buchanan "Gas" Kirkwood-1 Kirkwood-2 Tracey	1,473 1,060 1,265 1,372 1,061 1,404 1,453 1,508	18 90 20 20 99 21 8 16	973 786 714 873 530 705 621 983	1,476 1,080 1,000 1,375 964 705 1,404 1,541	Show Show Show	Salt water, 1,045 feet. Gas, 1,280 feet.
9	Snowden Bros.	Perkins, No. 15.	523	Buchanan "Gas" Kirkwood-1 Kirkwood-2 Tracey	1,061 1,265 1,404 1,453 1,508	99 20 21 8 16	530 705 621 983	964 705 1,404 1,541		Salt water, 1,070 feet. Gas, 1,325 feet.



## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
32—  S. W..	10	Snowden Bros.	Perkins, No. 29.	498	Bridgeport.	760	15	262	1,238			
					do.	815	10	317	1,183			
					do.	945	50	447	1,053	951	Show	
					Bridgeport and Buchanan	1,040	80	542	958			Salt water, 1,050 feet.
					"Gas"	1,265	15	797	703			Gas, 1,300 feet.
11	Snowden Bros.	Snowden Bros.	Perkins, No. 4.	498	Kirkwood-1.	1,396	18	888	612			
					Kirkwood-2.	1,408	8	910	590	1,410		
					McClosky.	1,585	64	1,087	413	1,649	Gas	G s, 1,596, 1,613 and 1,628 feet.
					Bridgeport.	817	20	319	1,181			
					do.	911	19	413	1,087			
					do.	1,043	7	545	955		10	Well abandoned.
					do.	808	10	314	1,186			
					do.	898	137	404	1,090			
					do.	720	5	226	1,274		Show	
					do.	800	26	306	1,194	805		Salt water, 880 feet.
13	Snowden Bros.	Snowden Bros.	Perkins, No. 16.	494	do.	840	75	346	1,154	840		
					Bridgeport and Buchanan	1,080	90	566	934			Salt water, 880 feet.
					"Gas"	1,280	20	796	714			Hole full of water.
					Kirkwood-1.	1,356	54	863	638	1,378		Gas, 1,285 feet.
					Kirkwood-2.	1,443	17	949	551	1,445	100	
14	Snowden Bros.	Snowden Bros.	Perkins, No. 10.	528	Tracy.	1,479	14	985	516			
					Bridgeport.	940	60	412	1,088	1,508		
					"Gas"	1,338	22	810	690			Gas, 1,338 feet.
					Kirkwood.	1,428	13	900	600	1,445	50	

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**S. S.**

## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur- face ele- vation— feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
32—	S. W..	26 M. Murphy.	Stoltz Hrs., No. 8.	501	Bridgeport.	840	76	339	1,161			Salt water, 1,090 feet.
					do.	1,060	30	559	941			Gas, 1,303 feet.
27	M. Murphy.		Stoltz Hrs., No. 2.	500	"Gas".	1,298	5	797	703			
					Kirkwood.	1,318	16	817	683	1,334		
28	M. Murphy.		Stoltz Hrs., No. 3.	506	Bridgeport.	1,386	20	885	615	1,406		
					do.	800	8	300	1,200			
29	M. Murphy.		Stoltz Hrs., No. 7.	508	do.	845	18	345	893			
					do.	876	40	376	1,155			
30	M. Murphy.		Stoltz Hrs., No. 4.	503	do.	1,002	25	502	998	1,027		
					do.	1,791	19	285	1,215			
31	M. Murphy.		Stoltz Hrs., No. 5.	491	do.	810	41	304	1,196	810		
					do.	824	15	318	1,182			
32	M. Murphy.		Stoltz Hrs., No. 9.	498	do.	852	7	346	1,154			
					do.	864	10	358	1,142	894		
33	M. Murphy.		Stoltz Hrs., No. 6.	493	do.	892	31	386	1,114	892		
					do.	792	28	284	1,216	1,060		
34	M. Murphy.		Stoltz Hrs., No. 7.	508	do.	1,297	16	789	711			
					do.	1,380	21	872	628	1,391		
35	M. Murphy.		Stoltz Hrs., No. 8.	503	"Gas".	1,390	16	872	628	1,391		
					Kirkwood.	1,792	20	289	1,211	1,401		
36	M. Murphy.		Stoltz Hrs., No. 9.	498	Bridgeport.	1,792	20	289	1,211			
					do.	886	34	383	1,117			
37	M. Murphy.		Stoltz Hrs., No. 10.	493	do.	982	34	479	1,021			
					do.	1,027	9	524	976	1,036		
38	M. Murphy.		Stoltz Hrs., No. 11.	491	do.	772	23	281	1,219	785		
					do.	862	23	371	1,126			
39	M. Murphy.		Stoltz Hrs., No. 12.	491	do.	982	34	371	1,126			
					do.	1,005	6	514	1,009			
40	M. Murphy.		Stoltz Hrs., No. 13.	498	do.	1,005	6	514	986	1,011		
					do.	860	40	367	1,133	890		
41	M. Murphy.		Stoltz Hrs., No. 14.	498	do.	1,000	19	507	983			
					do.	1,286	1	792	708			
42	M. Murphy.		Stoltz Hrs., No. 15.	498	"Gas".	1,347	13	854	646	1,347		
					Kirkwood-1.	1,363	9	860	631	1,371		
43	M. Murphy.		Stoltz Hrs., No. 16.	498	Kirkwood-2.	1,363	9	860	631	1,371		
					do.	1,363	9	860	631	1,371		

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## Lawrence County—Bridgeport Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
32— N. E...	8	Ohio.....	Johnson, No. 5.....	470	Bridgeport.....	780	15	310	1,190	785	100	
	9	Ohio.....	Johnson, No. 1.....	472	do.....	939	27	469	1,031	940		
	10	Ohio.....	Johnson, No. 2.....	461	do.....	782	18	310	1,190	785	50	
	11	Ohio.....	Johnson, No. 3.....	462	do.....	890	10	418	1,082	885		
	12	Ohio.....	Griggs, No. 14.....	458	do.....	865	21	404	1,086		75	
	13	Ohio.....	Griggs, No. 20.....	457	do.....	925	25	404	1,036	930		
	14	Ohio.....	Griggs, No. 11.....	461	do.....	775	21	313	1,187	780	90	
	15	Ohio.....	Griggs, No. 21.....	458	do.....	927	18	465	1,035			
	16	Ohio.....	Griggs, No. 27.....	473	do.....	1,417	51	859	541			
	17	Ohio.....	Griggs, No. 22.....	463	do.....	1,437	7	999	501	1,450	50	
	18	Ohio.....	Griggs, No. 17.....	468	do.....	1,431	7	974	528	1,431		
	19	Ohio.....	Griggs, No. 23.....	467	do.....	1,431	8	1,007	493	1,464	40	
	20	Ohio.....	Griggs, No. 10.....	465	do.....	1,464	8	884	516	1,448	100	
	21	Ohio.....	Griggs, No. 24.....	474	do.....	1,445		23	409	1,067	50	
	1	Bridgeport.....	Stoltz, No. 2.....	498	do.....	867	23	452	1,048			
30— N. E...					Gas.....	910	17	485	615	1,358		Gas, 1,353 feet.
					Bridgeport.....	1,432	24	899	541	1,437	100	
					do.....	861	42	398	1,102	861	65	Gas, 916 feet.
					do.....	916	3	453	1,047		170	
					do.....	881	13	413	1,087	891		
					do.....	786	125	319	1,181	790	85	Gas, 872 feet.
					Kirkwood.....	1,432	37	967	533	1,432	200	
					Bridgeport.....	898	22	424	1,076	898	80	
					Kirkwood.....	1,558	30	1,060	440	1,560	1,589	

2 Bridgeport.	Stoltz, No. 12.	508	Bridgeport.	700	30	1,308			Salt water, 715 feet.	
			do.	745	35	227	1,263		Salt water, 780 feet.	
			do.	825	35	317	1,183			
			do.	1,040	50	332	968			
			Buchanan.	1,318	39	690				
3 Bridgeport.	Stoltz, No. 4.	510	Gas.	1,585	10	877	523		Salt water.	
			do.	1,584	39	946	454	1,572	1,609	
			Kirkwood.	868	12	338	1,142			
			Bridgeport.	900	12	350	1,110			Salt water, 1,204 and 1,278 feet.
			do.	1,114	211	604	886			
4 Bridgeport.	Stoltz, No. 6.	504	Buchanan.	1,348	40	838	662			
			do.	1,462	6	952	548			
			Stray.	1,652	20	1,142	353	1,660	240	
			Kirkwood.	830	40	326	1,174			
			Bridgeport.	1,040	112	536	964			Salt water.
5 Bridgeport.	Stoltz, No. 5.	481	do.	1,175	75	671	829		do.	
			Buchanan.	1,250	168	746	764			do.
			do.	1,480	10	976	534		Show	Salt water, 1,340 feet.
			"Gas".	1,557	24	1,053	447	1,567	100	
			Kirkwood.	1,580	48	1,099	401	1,587	50	
6 Bridgeport.	Stoltz, No. 1.	488	do.	1,483	10	997	503		Show	
			"Gas".	1,565	22	1,077	423	1,565	300	
			Kirkwood.	1,590	1,105	395	1,603	1,618		
			do.	820	35	331	1,169			
			Bridgeport.	1,050	165	561	939			Salt water.
8 Bridgeport.	Stoltz, No. 3.	489	do.	1,300	40	811	688		Salt water, 1,195 feet.	
			Buchanan.	1,475	20	986	514			
			"Gas".	1,570	36	1,061	419	1,570	80	
			Kirkwood.	1,562	60	1,046	454			Salt water.
			do.	1,616	60	1,100	400	1,625	1,691	
9 Bridgeport.	Stoltz, No. 11.	516	Kirkwood.						No record.	
			do.						do.	do.
			do.						do.	do.
			do.						do.	do.
			do.						do.	do.
10 Burton Bros.	Piper, No. 1.	492	Bridgeport.	810	18	289	1,211			
			do.	880	50	359	1,141			
			do.	1,160	125	639	861			Salt water.
			"Gas".	1,580	15	1,069	431			
			Kirkwood.	1,672	37	1,151	349	1,677	1,709	
11 Burton Bros.	Piper, No. 2.	509	Bridgeport.	880	50	384	1,116		Salt water, 905 feet.	
			do.	1,125	135	619	881			Salt water, 1,160 feet.
			do.	1,285	40	779	721			Salt water, 1,325 feet.
			do.	1,380	60	884	616			Salt water, 1,435 feet.
			Buchanan.	1,532	7	1,026	474			Salt water, 1,589 feet.
2 Snowden Bros.	Fyffe, No. 9.	506	Stray.	1,578	16	1,067	433		150	
			"Gas".	1,642	57	1,136	364	1,651	1,717	
			Kirkwood.							
			do.							
			do.							

## Lawrence County—Bridgeport Township—Concluded.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
36—	S. E....	3 Snowden Bros.	Fyffe, No. 8.	499	Bridgeport.....	885	37	356	1,144			Hole full of water, 885 feet.
					do.....	1,085	100	596	914			Hole full of water, 1,110 feet.
S. E....	4	Snowden Bros.	Fyffe, No. 3.	506	Buchanan.....	1,275	25	776	724			
					"Gas".....	1,345	65	846	654			
S. E....	5	International Oil & Gas Co.	C. Fyffe, No. 2.	512	Kirkwood.....	1,535	21	1,036	464			Salt water, 1,544 feet.
					do.....	1,621	46	1,122	378	1,625	1,670	
S. E....	6	International Oil & Gas Co.	C. Fyffe, No. 4.	516	do.....	1,563	18	1,087	413			
					do.....	1,694	24	1,082	418			
S. E....	7	International Oil & Gas Co.	C. Fyffe, No. 5.	526	Bridgeport.....	1,125	75	609	891			
					do.....	1,222	35	706	794			
S. E....	8	Bridgeport.....	Stoltz, No. 13.	523	do.....	1,200	25	784	716			
					Buchanan.....	1,410	25	894	606			
S. E....	9	International Oil & Gas Co.	C. Fyffe, No. 6.	527	Stray.....	1,465	15	949	551			
					Kirkwood-1.....	1,645	22	1,129	371			
S. E....	10	International Oil & Gas Co.	C. Fyffe, No. 7.	528	Kirkwood-2.....	1,673	5	1,157	343	1,685		Hole full of salt water, 1,135 feet.
					Bridgeport.....	1,120	90	594	906			
S. E....	11	International Oil & Gas Co.	C. Fyffe, No. 8.	529	Kirkwood-1.....	1,666	18	1,140	360		Show	
					Kirkwood-2.....	1,699	21	1,163	337	1,666		
S. E....	12	Bridgeport.....	Stoltz, No. 14.	530	Bridgeport.....	1,770	25	247	1,253	1,720		Salt water.
					do.....	850	85	327	1,173			Salt water, 935 feet.
S. E....	13	Bridgeport.....	Stoltz, No. 15.	531	do.....	967	8	444	1,056			
					do.....	1,020	15	497	1,003			
S. E....	14	Bridgeport.....	Stoltz, No. 16.	532	do.....	1,146	99	623	877			Salt water.
					do.....	1,260	60	737	763			do.
S. E....	15	Bridgeport.....	Stoltz, No. 17.	533	Buchanan.....	1,360	100	867	633			
					do.....	1,445	25	922	578			
S. E....	16	Bridgeport.....	Stoltz, No. 18.	534	Stray.....	1,595	10	1,073	428			Salt water.
					"Gas".....	1,670	31	1,156	311	1,690		
S. E....	17	Bridgeport.....	Stoltz, No. 19.	535	Kirkwood.....	1,670	31	1,156	311	1,734		
					do.....	1,670	31	1,156	311	1,734		

9	International Oil & Gas Co.	C. Fyffe, No. 6	531	Bridgeport..... do..... Buchanan..... "Gas"..... Kirkwood.....	875 1,100 1,420 1,550 1,623	70 141 28 25 12	344 579 889 1,019 1,092	1,156 921 611 481 408	1,635 1,668	Salt water, 884 feet. Salt water, 1,170 feet. Salt water, 1,430 feet. Salt water, 1,430 feet. Salt water.
10	International Oil & Gas Co.	C. Fyffe, No. 1	538	do.....	1,600	1,002	438			Salt water.
11	International Oil & Gas Co.	C. Fyffe, No. 3	529	do.....	1,677	1,148	352	1,686	1,710	Salt water, 1,270 feet.
12	Bridgeport.	Stolz, No. 9	526	Bridgeport..... Kirkwood.....	1,160 1,668	634 1,172	866 328	1,710		Salt water.

## Lawrence County—Christy Township.

Section No.	Map No.	Name of oil company	Name of well.	Sur-face elevation—feet.	Sand				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
10—N. E.	1	Home Oil & Gas Co.	Mathias, No. 1	470	Shallow..... Bridgeport.....	825 1,000	20	355 530	1,145 970			Salt water, 852 feet. Coal, 760 feet (lime cap).
12—N. W.	1	Home Oil & Gas Co.	Saunders, No. 1		Shallow..... Stray.....	830 1,110	40				Show	Coal, 770 feet (lime cap).
13—N. W.	1	Ohio.....	Neldaugh, No. 1	495	Bridgeport.....	1,330	130	835	665	1,526	Dry	Salt water, 1,400 feet.
36—N. W.	1	Everson.....	Candle, No. 1	509	do..... Buchanan..... Stray..... Kirkwood.....	900 1,075 1,235 1,470 1,680	25 10 235 20 50	391 566 726 961 1,171	1,109 834 774 639 329			Salt water, 1,120 feet. Salt water, 1,120 feet. Salt water, 1,120 feet. Salt water, 1,400 feet.



## Lawrence County—Bridgeport Township—Concluded.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
36—	S. E....	3 Snowden Bros	Fyffe, No. 8.	499	Bridgeport.....	855	37	356	1,144			Hole full of water, 885 feet.
					do.....	1,085	100	586	914			Hole full of water, 1,110 feet.
4	5	Snowden Bros	Fyffe, No. 3.	506	do.....	1,275	25	776	724			
					do.....	1,345	65	846	654			
6	7	International Oil & Gas Co.	C. Fyffe, No. 2.	512	Kirkwood.....	1,535	21	1,086	464			Salt water, 1,544 feet.
					do.....	1,621	46	1,122	378	1,625	1,670	125
8	9	International Oil & Gas Co.	C. Fyffe, No. 4.	516	do.....	1,563	18	1,067	413			100
					do.....	1,594	24	1,062	418			125
10	11	International Oil & Gas Co.	C. Fyffe, No. 5.	526	Bridgeport.....	1,125	75	609	891			
					do.....	1,222	35	706	794			
12	13	International Oil & Gas Co.	C. Fyffe, No. 6.	528	do.....	1,200	26	784	716			
					do.....	1,410	25	894	606			
14	15	International Oil & Gas Co.	C. Fyffe, No. 7.	530	Buchanan.....	1,465	15	949	551			
					do.....	1,645	22	1,129	371			
16	17	International Oil & Gas Co.	C. Fyffe, No. 8.	532	Kirkwood-1.....	1,673	5	1,157	343	1,685		Hole full of salt water, 1,135 feet.
					Kirkwood-2.....	1,120	90	594	906			
18	19	International Oil & Gas Co.	C. Fyffe, No. 9.	534	Bridgeport.....	1,666	18	1,140	360	1,686		
					do.....	1,689	21	1,163	337	1,699	1,720	Show
20	21	International Oil & Gas Co.	C. Fyffe, No. 10.	536	Kirkwood-1.....	1,689	21	1,163	337	1,699		Salt water.
					Kirkwood-2.....	1,770	25	1,243	247			Salt water, 935 feet.
22	23	International Oil & Gas Co.	C. Fyffe, No. 11.	538	Bridgeport.....	850	85	337	1,173			
					do.....	867	8	444	1,036			
24	25	International Oil & Gas Co.	C. Fyffe, No. 12.	540	do.....	1,020	15	467	1,003			
					do.....	1,146	99	623	577			Salt water.
26	27	International Oil & Gas Co.	C. Fyffe, No. 13.	542	do.....	1,260	60	737	763			do.
					do.....	1,390	10	867	633			
28	29	International Oil & Gas Co.	C. Fyffe, No. 14.	544	Buchanan.....	1,445	25	922	578			
					do.....	1,595	10	1,073	428			Salt water.
30	31	International Oil & Gas Co.	C. Fyffe, No. 15.	546	Stray.....	1,070	31	1,156	311	1,480	1,711	
					do.....	1,070	31	1,156	311	1,480	1,711	Salt water.

9	International Oil & Gas Co.	C. Fyfe, No. 6.	531	Bridgeport. do Buchanan. "Gas" Kirkwood.	875 1,100 1,420 1,550 1,623	70 141 28 25 12	344 579 889 1,019 1,092	1,156 921 611 481 408	1,635 1,668	Salt water, 884 feet. Salt water, 1,170 feet. Salt water, 1,430 feet. Salt water, 1,430 feet. Salt water.
10	International Oil & Gas Co.	C. Fyfe, No. 1.	538	do.	1,600	.....	1,062	438	.....	Salt water.
11	International Oil & Gas Co.	C. Fyfe, No. 3.	529	do.	1,677	.....	1,148	352	1,686	1,710
12	Bridgeport.	Stoltz, No. 9.	526	Bridgeport. Kirkwood.	1,160 1,668	150 25	634 1,172	866 328	1,710	Salt water, 1,270 feet.

## Lawrence County—Christy Township.

Section No.	Map No.	Name of oil company	Name of well.	Sur- face ele- va- tion— feet.	Sand					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
10— N. E.	1	Home Oil & Gas Co.	Mathias, No. 1.	470	Shallow. Bridgeport.	825 1,000	20	355 530	1,145 970				Salt water, 852 feet. Coal, 760 feet (lime cap).
12— N. W.	1	Home Oil & Gas Co.	Saunders, No. 1.		Shallow. Stray.	830 1,110	40					Show	Coal, 770 feet (lime cap).
13— N. W.	1	Ohio.	Neldaugh, No. 1.	495	Bridgeport.	1,330	130	835	665		1,528	Dry	Salt water, 1,400 feet.
36— N. W.	1	Everson.	Candle, No. 1.	509	..do.. Buchanan. Stray. Kirkwood.	900 1,075 1,235 1,470 1,690	25 10 235 20 50	291 566 728 961 1,171	1,109 934 774 539 329		1,730		Salt water, 1,120 feet.

## Lawrence County—Dennison Township.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
1— N. E..	1	Wark.....	Lingenfelter, No. 9.....	439	Kirkwood-1.....	1,571	10	1,134	366	.....	.....	Drilling.....
	2	Wark.....	Lingenfelter, No. 1.....	437	Kirkwood-2.....	1,612	10	1,175	325	.....	.....	Quit in hard sand.
	3	Wark.....	Lingenfelter, No. 2.....	438	Kirkwood-1.....	1,545	20	1,107	383	1,622	.....	.....
	1	Wark.....	Lingenfelter, No. 3.....	445	Kirkwood-2.....	1,591	10	1,153	347	1,601	.....	Salt water, 1,585 feet.
N. W..	1	Wark.....	Lingenfelter, No. 3.....	445	Kirkwood-1.....	1,542	53	1,097	403	.....	.....	Sand, white, broken.
	2	Wark.....	Lingenfelter, No. 4.....	445	Bridgeport.....	934	18	489	1,011	.....	.....	.....
	3	Wark.....	Lingenfelter, No. 5.....	453	Kirkwood-1.....	1,533	32	1,088	411	1,550	.....	.....
	3	Wark.....	Lingenfelter, No. 5.....	453	Kirkwood-2.....	1,572	8	1,127	373	1,580	.....	.....
4	4	Wark.....	Lingenfelter, No. 6.....	462	Bridgeport.....	937	13	484	1,016	943	.....	.....
	4	Wark.....	Lingenfelter, No. 6.....	462	Kirkwood-1.....	1,549	73	1,087	413	{ 1,558 1,605	.....	Hard white sand, 1,578 to 1,605 feet, 1,611 to 1,622 feet.
	5	Wark.....	Lingenfelter, No. 7.....	461	Tracy.....	1,654	23	1,102	308	1,602	.....	.....
	6	Wark.....	Lingenfelter, No. 8.....	455	Kirkwood.....	1,663	10	1,231	269	1,603	.....	.....
7	7	Central Refining Co.....	Jenner, No. 9.....	472	Tracy.....	1,555	20	1,064	406	1,705	Show	.....
	7	Central Refining Co.....	Jenner, No. 9.....	472	Kirkwood.....	1,670	28	1,209	261	1,670	.....	.....
	8	Central Refining Co.....	Jenner, No. 6.....	478	Bridgeport.....	1,538	20	1,081	419	1,538	.....	Salt water, 1,045 feet.
	9	Central Refining Co.....	Jenner, No. 4.....	482	Bridgeport.....	978	47	1,063	994	1,570	.....	.....
10	10	Donnel, Agent.....	C. Buchanan, No. 5.....	477	Tracy.....	1,565	16	1,198	302	1,720	.....	.....
	10	Donnel, Agent.....	C. Buchanan, No. 5.....	477	Kirkwood.....	1,670	16	1,198	302	1,720	.....	.....
	10	Donnel, Agent.....	C. Buchanan, No. 5.....	477	Bridgeport.....	983	41	1,111	389	1,592	.....	Salt water, 1,005 feet.
	10	Donnel, Agent.....	C. Buchanan, No. 5.....	477	Kirkwood.....	1,587	41	1,111	389	1,592	.....	.....
11	11	Donnel, Agent.....	C. Buchanan, No. 7.....	475	Bridgeport.....	945	23	1,483	1,037	986	.....	.....
	11	Donnel, Agent.....	C. Buchanan, No. 7.....	475	Kirkwood-2.....	1,610	25	1,133	367	.....	.....	.....
11	11	Donnel, Agent.....	C. Buchanan, No. 7.....	475	Tracy.....	1,607	3	1,133	367	.....	.....	.....
	11	Donnel, Agent.....	C. Buchanan, No. 7.....	475	McCusky.....	1,850	.....	1,373	137	1,809	.....	Salt water, 1,550 feet.
11	11	Donnel, Agent.....	C. Buchanan, No. 7.....	475	McCusky.....	1,850	.....	1,373	137	1,809	.....	Well abandoned.
	11	Donnel, Agent.....	C. Buchanan, No. 7.....	475	Kirkwood-1.....	1,640	.....	1,065	435	2,005	.....	Salt water, 1,460 and 1,450 feet. Well abandoned.

S. W.	Donnel, Agent	C. Buchanan, No. 9	440	Bridgeport	933	483	1,007	940	Show	Gas, 940 feet.	Salt water.
1	Ohio	A. Buchanan, No. 1	479	Kirkwood-1	1,570	1,130	370	963	2,017	1,000 feet.	Salt water, 1,600 feet.
				Tracey	1,680	1,240	260	963	160	Well abandoned	
2	Ohio	A. Buchanan, No. 12	467	do	940	17	1,019			Gas, 962 feet.	
				Buchanan	1,300	17	1,027			Salt water, 1,115 feet.	
3	Ohio	A. Buchanan, No. 13	468	Kirkwood-2	1,602	195	833			Salt water, 1,310 feet.	
				Tracey	1,708	46	1,335			Salt water, 1,648 feet.	
4	Ohio	E. J. Ridgely, No. 2	473	do	765	10	1,242			Gas, 1,709 feet.	4,500,000 cu. ft. gas first day.
				Bridgeport	945	7	1,173	795	803	250	Gas, 795 feet.
5	Ohio	C. Gillespie, No. 1	473	do	1,335	10	1,028				
				Buchanan	1,500	30	862				
6	Ohio	Wm. Gillespie, No. 2	473	Kirkwood	1,700	40	1,087				
				Tracey	1,775	20	1,227				
7	Ohio	Finley, No. 7	473	McClosky	1,775	7	1,302				
				Bridgeport	975	140	502				
8	Ohio	Irish, No. 1	484	Buchanan	1,310	15	837				
				Kirkwood-2	1,625	16	1,152	1,331	1,641	12	Salt water, 1,640 feet. Gas 1,625 feet.
9	Ohio	Finley, No. 3	487	Bridgeport	973	47	501				
				Stray	1,120	30	648				
10	Ohio	Finley, No. 6	487	Buchanan	1,320	80	848				
				Kirkwood-1	1,565	25	1,083				
11	Ohio	Finley, No. 4	504	Kirkwood-2	1,619	3	1,147				
				do	1,570	35	1,085	1,552			
12	Ohio	Finley, No. 5	507	do	1,633	22	1,178	1,655	1,681	50	No record.
				do							
13	Ohio	Finley, No. 1	496	Shallow	600	30	116				
				Bridgeport	843	19	359				
14	Ohio	Irish, No. 1	484	do	868	20	384				
				do	952	13	468	940			
15	Ohio	Irish, No. 2	474	do	983	162	490	995			
				Buchanan-1	1,315	10	831				
16	Ohio	Irish, No. 3	499	Buchanan-2	1,350	20	866				
				Stray	1,417	38	933				
17	Ohio	Irish, No. 10	474	do	1,528	12	1,044				
				Kirkwood	1,580	38	1,086				
18	Ohio	Irish, No. 2	477	Bridgeport-1	940	3	475				
				Bridgeport-2	953	17	479				
19	Ohio	Irish, No. 3	499	Bridgeport	955	23	478				
				Shallow	700	15	201				
20	Ohio	Irish, No. 9	503	Bridgeport	977	27	478				
				do	1,000	72	497	1,000	1,125	Show	Well abandoned.

## Lawrence County—Dennison Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
2--	N. E...	13 Ohio.....	L. Buchanan, No. 22.....	517	992	32	475	1,025				Salt water, 1,028 to 1,155 feet.....
					1,290	190	773	727				Salt water, 1,315 feet.....
	14 Ohio.....	L. Buchanan, No. 23.....	L. Buchanan, No. 23.....	508	1,578	152	1,061	1,040	1,583	1,615	15	Gas, 1,560 feet.....
					1,968	37	1,061	1,040				Salt water, 1,020 feet.....
	15 Ohio.....	L. Buchanan, No. 16.....	L. Buchanan, No. 16.....	507	1,300	185	792	708	1,630	1,620	50	Gas, 1,598 feet.....
					1,595	25	1,087	1,036				Salt water, 1,320 feet.....
	16 Ohio.....	L. Buchanan, No. 13.....	L. Buchanan, No. 13.....	512	979	49	464	1,036	1,936	995	125	Gas, 935 feet.....
					979	49	464	1,036	990	1,025	50	Gas, 980 feet.....
	17 Ohio.....	L. Buchanan, No. 11.....	L. Buchanan, No. 11.....	517	979	41	463	1,038	990	1,020	100	Gas, 982 feet.....
					980	20	490	1,010				
	18 Ohio.....	L. Buchanan, No. 2.....	L. Buchanan, No. 2.....	490	1,592	38	1,102	968	1,636	1,630	125	Gas, 1,605 feet.....
					1,945	40	1,078	1,024	970	1,008	150	Gas, 968 feet.....
	19 Ohio.....	L. Buchanan, No. 7.....	L. Buchanan, No. 7.....	512	945	71	433	1,067				
					1,588	65	1,078	1,024	1,663			Dry Salt water, 1,592 feet.....
	20 Ohio.....	L. Buchanan, No. 9.....	L. Buchanan, No. 9.....	512	987	20	464	1,036	1,610	1,641	150	
					1,590	51	1,087	1,048				
	21 Ohio.....	L. Buchanan, No. 6.....	L. Buchanan, No. 6.....	503	970	30	462	1,048	1,620	1,641	30	Gas, 1,615 feet. Salt wa-
					1,600	41	1,082	1,048				ter, 1,641 feet.....
	22 Ohio.....	L. Buchanan, No. 8.....	L. Buchanan, No. 8.....	518	970	50	448	1,032	985	1,022	125	Gas, 972 feet.....
					1,590	27	451	1,049	987	987	90	
	23 Ohio.....	L. Buchanan, No. 10.....	L. Buchanan, No. 10.....	522	940	20	468	1,032	961	984	100	Gas, 966 feet.....
					1,590	20	468	1,032				
	24 Ohio.....	L. Buchanan, No. 1.....	L. Buchanan, No. 1.....	493	981	57	436	1,064				
					1,590	80	520	977				Salt water.....
	25 Ohio.....	L. Buchanan, No. 25.....	L. Buchanan, No. 25.....	497	1,020	80	520	977	1,566	1,587		Salt water, 1,315 feet.....
					1,590	182	923	997				125 Gas, 1,565 feet.....
	26 Ohio.....	L. Buchanan, No. 26.....	L. Buchanan, No. 26.....	518	1,584	21	1,067	1,048				
					1,590	48	462	1,048				
	27 Ohio.....	L. Buchanan, No. 26.....	L. Buchanan, No. 26.....	518	1,310	15	792	708	1,610	1,618	75	Gas, 1,607 feet.....
					1,590	30	1,070	1,048				175 Gas, 970 feet.....
	28 Ohio.....	L. Buchanan, No. 3.....	L. Buchanan, No. 3.....	518	970	45	462	1,048	970	1,015		
					970	60	466	1,034	968	1,018	50	Gas, 964 feet.....
	29 Ohio.....	L. Buchanan, No. 17.....	L. Buchanan, No. 17.....	513	970	60	466	1,034				
					970	60	466	1,034				

30 Ohio.....	L. Buchanan, No. 5.....	513 {	do.....	970	70	457	1,043	1,009	1,646	Gas, 1,595 feet. Salt water, 1,646 feet. Well abandoned.
1 Ohio.....	Kerr, No. 19.....	510 {	Bridgeport.....	975	30	465	1,035			
2 Ohio.....	Kerr, No. 1.....	509 {	Buchanan.....	1,300	110	790	1,710			Gas, 1,590 feet.
3 Ohio.....	Kerr, No. 4.....	515 {	Bridgeport.....	1,567	38	1,057	443	1,582	1,605	Gas, 960 feet.
4 Ohio.....	Kerr, No. 10.....	517 {	do.....	955	49	446	1,054	973	1,002	Gas, 965 feet.
5 Ohio.....	Kerr, No. 7.....	517 {	Shallow.....	643	8	126	1,374			
6 Ohio.....	Kerr, No. 9.....	515 {	Bridgeport.....	970	30	453	1,047	977	1,005	
7 Ohio.....	Kerr, No. 13.....	515 {	Kirkwood.....	1,597	39	1,080	1,420	1,607		
8 Ohio.....	Kerr, No. 15.....	512 {	Shallow.....	753	14	238	1,262			
9 Ohio.....	Kerr, No. 17.....	512 {	do.....	960	49	445	1,055		1,009	
10 Ohio.....	Kerr, No. 18.....	512 {	do.....	972	40	460	1,040	978	1,011	
11 Ohio.....	Kerr, No. 12.....	504 {	do.....	966	45	454	1,046	970	1,000	
12 Ohio.....	Kerr, No. 24.....	499 {	Shallow.....	649	25	137	1,353	649	679	
13 Ohio.....	Kerr, No. 11.....	494 {	Bridgeport.....	972	33	468	1,032	972	980	
14 Ohio.....	Kerr, No. 8.....	494 {	do.....	968			1,032		1,001	
15 Ohio.....	Kerr, No. 6.....	494 {	do.....	941	50	447	1,053			Drilling
16 Ohio.....	Kerr, No. 23.....	505 {	Shallow.....	585	60	91	1,409		645	
17 Ohio.....	Kerr, No. 5.....	509 {	Bridgeport.....	910	87	405	1,085	964		
18 Ohio.....	Kerr, No. 21.....	509 {	do.....	945	42	466	1,044	974		Drilling
19 Ohio.....	Kerr, No. 3.....	515 {	Bridgeport.....	1,200	745	755				
20 Ohio.....	Kerr, No. 22.....	515 {	Buchanan.....	1,308	738	707				
21 Ohio.....	Kerr, No. 2.....	515 {	do.....	1,596	1,071	429	1,586	1,615		
22 Ohio.....	Kerr, No. 20.....	516 {	Bridgeport.....	1,254	2	749	751			
23 Ohio.....	T. Gould, No. 20.....	514 {	do.....	1,300	21	785	715		1,321	Well abandoned.
24 Ohio.....	T. Gould, No. 7.....	516 {	Kirkwood.....	920	10	404	1,096	953	1,010	Gas, 920 feet.
25 Ohio.....	T. Gould, No. 8.....	510 {	do.....	1,580	245	471	1,029		1,613	
26 Ohio.....	T. Gould, No. 1.....	519 {	do.....	935	145	701				Salt water, 1,035 feet.
27 Ohio.....	S. Gray, No. 2.....	491 {	do.....	1,305	22	1,072	428	1,537	1,608	Salt water, 1,320 feet.
28 Ohio.....	S. Gray, No. 5.....	493 {	do.....	1,598	43	472	1,028	1,003	1,031	Gas, 1,585 feet.
29 Ohio.....	S. Gray, No. 3.....	493 {	do.....	978	32	463	1,032	983	1,010	Gas, 980 feet.
30 Ohio.....	S. Gray, No. 4.....	492 {	do.....	980	44	461	1,039	986	1,024	Gas, 980 feet.
31 Ohio.....	C. H. Buchanan, No. 3.....	487 {	do.....	957	29	466	1,034	957	986	Gas, 957 feet.
32 Donnel, Agent.....	C. H. Buchanan, No. 4.....	487 {	Shallow.....	952	29	459	1,041	956	984	
33 Donnel, Agent.....	C. H. Buchanan, No. 2.....	491 {	do.....	945	32	461	1,049	970	983	
34 Donnel, Agent.....	C. H. Buchanan, No. 1.....	491 {	do.....	953	36	461	1,039	985	1,004	
35 Donnel, Agent.....	C. E. Buchanan, No. 1.....	473 {	do.....	949	30	117	1,383	965	1,004	
36 Donnel, Agent.....	C. E. Buchanan, No. 2.....	483 {	do.....	942	18	456	1,044	965	986	
37 Donnel, Agent.....	C. E. Buchanan, No. 2.....	483 {	do.....	942	18	456	1,044	965	986	
			do.....	890	17	389	1,111			
			do.....	973	5	482	1,018	978	997	Salt water, 997 feet.
			Shallow.....	770	270	270	1,221	980	1,002	
			Bridgeport.....	975	502	502	998	980	1,002	
			do.....	990	507	507	993	993	1,003	

## Lawrence County—Dennison Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.				
2—N. W.	38	Donnel, Agent.	E. Vandermark, No. 2.	470	Shallow.	635	35	152	1,348			Well abandoned.
	39	Donnel, Agent.	E. Vandermark, No. 1.	475	Bridgeport.	989	30	482	1,014		15	No record.
S. W.	40	Lantz.	A. Gray, No. 4.	483	Buchanan.	1,350	212	867	933	992	200	Exhausted.
					Kirwood.	1,661		1,122	378			Red rock, 1,600 and 1,640 feet.
					Stray.	1,643		1,160	340	1,643		208 salt water, 1,667 feet.
					McCluskey.	1,909		1,419	81	2,280		Show salt water, 2,280 feet.
					Bridgeport.	1,856	40	1,119	1,010			
					Kirwood.	1,804	38	1,138	932	2,028		Dry salt water, 2,012 feet.
					Bridgeport.	974		471	1,028	990		
					Shallow.	443	10	20	1,520			Sand above sea level.
					Bridgeport.	930	53	451	1,019	1,003	5	Salt water, 1,003 feet.
					Shallow.	483	17	17	1,533	493	12	Light.
S. E.	5	Mae.	Gillespie, No. 2.	468	do.	444	12	25	1,523		50	
					do.	483	16	16	1,484			
					do.	483	16	17	1,483			
					do.	482	42	17	1,607	997	5	Gas, 997 feet.
					Bridgeport.	938	106	460	1,007	1,002		Dry salt water, 1,040 feet.
					do.	942		480	1,020	931	200	Gas, 830 feet.
					do.	926	49	463	1,042	975	250	Gas, 830 feet.
					do.	928	48	462	1,048	935	970	Gas, 932 feet.
					do.	938	32	449	1,051	963	50	Gas, 932 feet.
					do.	1,033	4	380	970	1,040		Dry salt water, 1,037 feet.
S. E.	5	Ohio.	A. Buchanan, No. 8.	503	do.	340	22	113	1,618			
					Bridgeport.	945	45	440	1,060	997	175	Gas, 986 feet.
					Shallow.	680	15	194	1,306			
					Stray.	700	10	299	1,201			
	6	Ohio.	A. Buchanan, No. 7.	491	Bridgeport.	948	22	407	1,043	905	150	Gas, 950 feet.

7 Ohio.....	L. Buchanan, No. 18.....	485	Shallow.....	505	5	20	1,480	.....	.....	.....	Exhausted of oil.....
8 Mae.....	School House Lot, No. 1.....	486	do.....	615	5	130	1,370	.....	.....	.....	Gas, 954 feet.....
9 Ohio.....	L. Buchanan, No. 12.....	474	Bridgeport.....	678	7	193	1,307	.....	.....	.....	25 Salt water, 970 feet.....
10 Ohio.....	L. Buchanan, No. 19.....	492	Shallow.....	944	38	469	1,031	955	992	.....	40 Gas, 950 feet. Salt water, 960 feet.....
11 Associated Producers.....	Irish, No. 6.....	485	do.....	947	43	473	1,027	990	990	.....	.....
12 Associated Producers.....	A. Buchanan, No. 5.....	500	do.....	391	29	101	1,021	966	977	.....	75 Gas, 955 feet.....
13 Ohio.....	Irish, No. 7.....	497	do.....	929	71	444	1,056	951	1,000	.....	140 Gas, 951 feet.....
14 Associated Producers.....	L. Buchanan, No. 20.....	496	do.....	923	43	432	1,063	956	975	.....	200 Gas, 951 feet.....
15 Ohio.....	L. Buchanan, No. 21.....	507	do.....	968	49	471	1,029	968	1,017	.....	150 Gas, 954 feet.....
16 Ohio.....	Irish, No. 8.....	509	do.....	963	75	474	1,026	963	1,063	.....	120 Salt water, 1,012 feet.....
17 Associated Producers.....	A. Buchanan, No. 4.....	485	do.....	979	19	461	1,039	992	1,017	.....	Dry Salt water, 1,033 feet.....
18 Associated Producers.....	Irish, No. 4.....	508	do.....	975	35	467	1,073	975	1,010	.....	15 Gas, 960 feet.....
19 Ohio.....	A. Buchanan, No. 3.....	480	do.....	937	35	452	1,048	943	972	.....	50 Quilt in sand.....
20 Ohio.....	q. Gray, No. 6.....	512	do.....	948	35	468	1,032	953	983	.....	200 Gas, 950 feet. Quilt in sand.....
1 Ohio.....	S. Gray, No. 1.....	504	do.....	994	25	482	1,018	994	1,019	.....	100 Gas, 995 feet.....
2 Ohio.....	A. Gray, No. 5.....	500	do.....	988	34	481	1,016	987	1,022	.....	85 Gas, 987 feet.....
3 Lantz.....	A. Gray, No. 1.....	500	do.....	980	104	480	1,020	985	1,018	.....	.....
4 Lantz.....	Vandermark, No. 1.....	507	do.....	920	104	420	1,080	991	1,024	.....	Salt water, 780 and 1,024 feet.....
5 Lantz.....	Vandermark, No. 2.....	501	do.....	960	38	453	1,047	980	998	.....	80 Gas, 960 feet.....
6 Lantz.....	Vandermark, No. 4.....	500	do.....	725	15	224	1,276	958	975	.....	.....
7 Lantz.....	Vandermark, No. 5.....	489	do.....	900	75	399	1,101	958	975	.....	.....
8 Lantz.....	Lewis, No. 2.....	491	do.....	804	54	304	1,186	990	1,014	.....	.....
9 Lantz.....	Lewis, No. 4.....	483	do.....	909	97	418	1,062	990	996	.....	.....
10 Snowden Bros.....	J. Gray, No. 2.....	490	do.....	950	63	461	1,039	994	1,013	.....	.....
11 Snowden Bros.....	Lewis, No. 3.....	504	do.....	700	.....	209	1,291	991	.....	.....	.....
12 Lantz.....	Lewis, No. 1.....	498	do.....	1,000	.....	509	991	.....	.....	.....	.....
13 Snowden Bros.....	Lewis, No. 1.....	498	do.....	1,915	130	1,424	76	.....	2,045	.....	.....
14 Lantz.....	Dennison, No. 1.....	478	do.....	985	98	405	1,064	958	994	.....	.....
15 Snowden Bros.....	Leighly, No. 1.....	473	do.....	640	15	150	1,350	645	.....	.....	.....
1 Ohio.....	.....	.....	do.....	994	13	474	1,026	977	1,000	.....	.....
1 Wheeler & James.....	.....	.....	do.....	800	110	386	1,114	972	1,000	.....	.....
.....	.....	.....	do.....	485	12	13	1,513	485	.....	.....	.....
.....	.....	.....	do.....	640	8	142	1,358	.....	.....	.....	.....
.....	.....	.....	do.....	685	.....	187	1,313	.....	.....	.....	.....
.....	.....	.....	do.....	983	14	485	1,015	983	1,047	.....	.....
.....	.....	.....	do.....	919	11	392	1,108	870	.....	.....	.....
.....	.....	.....	do.....	919	73	441	1,069	.....	.....	.....	.....
.....	.....	.....	do.....	1,302	2	324	676	.....	.....	.....	.....
.....	.....	.....	do.....	1,370	16	901	599	.....	.....	.....	.....
.....	.....	.....	do.....	1,375	2	147	1,647	.....	.....	.....	.....
.....	.....	.....	do.....	725	30	313	1,187	.....	.....	.....	.....
.....	.....	.....	do.....	975	23	503	997	975	998	.....	.....

3- N. E.

N. W.

S. E.



## Lawrence County—Dennison Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
3—S. E.	2	Wheeler & James	Leighly, No. 2.	462	500	20	46	1,454	500	1,031	15	No record
	3	Ohio	Clark, No. 3.	454	750	50	296	1,204	500	1,031	15	No record
5—N. W.	1	Ohio	L. Jenner, No. 2.	410	1,557	44	1,147	353	1,548	1,602	Dry	Gas, 1,548 feet.
	2	Ohio	L. Jenner, No. 1.	409	1,540	39	1,131	369	1,548	1,579	65	Gas, 1,548 feet.
S. W.	3	Jennings	A. Jordan, No. 1.	411	1,548	19	1,137	363	1,554	1,598	Dry	Salt water, 1,533 feet.
	4	Ohio	L. Jenner, No. 3.	408	1,604	1,604	1,196	304	1,537	1,637	25	Gas, 1,580 feet. Salt water, 1,612 feet.
S. E.	1	Ohio	E. Meagher, No. 1.	419	1,578	32	1,159	341	1,584	1,615	Dry	Salt water, 1,537 feet.
	1	Ohio	Murphy, No. 1.	412	1,541	1,129	371	371	1,640	1,640	Dry	Salt water, 1,537 feet.
N. E.	1	Ohio	Ackman, No. 3.	412	1,537	43	1,125	375	1,612	1,612	20	Salt water, 1,598 feet.
	2	Ohio	Ackman, No. 2.	409	1,538	41	1,129	371	1,642	1,579	80	Gas, 1,542 feet.
N. W.	3	Ohio	Shuey, No. 3.	410	1,548	1,548	1,138	362	1,549	1,577	30	Salt water, 1,531 feet.
	4	Ohio	Shuey, No. 4.	418	1,532	51	1,164	336	1,612	1,633	Dry	Gas, 1,512 feet.
N. W.	5	Ohio	Shuey, No. 1.	410	1,550	29	1,140	360	1,550	1,579	150	Gas, 1,550 feet.
	6	Ohio	Ackman, No. 1.	412	1,532	1,532	1,140	360	1,552	1,587	75	Gas, 1,552 feet.
N. W.	7	Ohio	Ackman, No. 5.	413	1,532	38	1,119	381	1,548	1,570	130	Gas, 1,547 feet.
	8	Ohio	Ackman, No. 4.	415	1,537	43	1,122	378	1,572	1,612	20	Gas, 1,572 feet. Salt water, 1,598 feet.
N. W.	1	Ohio	Jordan, No. 2.	425	1,548	50	1,123	377	1,584	1,600	Gas	1,567 feet.
	2	Ohio	Jordan, No. 3.	423	1,557	68	1,134	366	1,565	1,630	Gas	1,570 feet.
N. W.	3	Ohio	E. Leighly, No. 2.	423	1,554	64	1,131	369	1,783	1,783	Dry	Salt water, 1,570 feet.
	4	Ohio	E. Leighly, No. 1.	424	1,742	6	1,319	181	1,816	1,816	Dry	Salt water, 1,570 feet.
N. W.	5	Ohio	E. Leighly, No. 4.	424	1,551	105	1,024	439	1,551	1,551	100	Gas, 1,602 feet.
	6	Ohio	Shuey, No. 2.	422	1,502	1,502	1,178	322	1,604	1,604	Dry	Salt water, 1,592 feet.

S. E..	1 Ohio...	G. Barnett, No. 1.	414	do.	1,557	36	1,143	357	1,582	1,593	60 Gas, 1,575 feet.
7- N. W..	1 Ohio...	N. Buchanan, No. 1.	416	do.	1,565	68	1,149	351			Dry
8- N. W..	1 Ohio...	Tracey		Tracey	1,665	10	1,249	251	1,570		
	1 Ohio...	G. Barnett, No. 2.	442	Kirkwood	1,800	38	1,158	342	1,626	1,646	5 Gas, 1,620 feet. Salt water, 1,638 feet.
11- N. E..	2 Ohio...	A. Jordan, No. 1.	440	do.	1,605	35	1,165	335	1,641		Dry Salt water, 1,640 feet. Well abandoned.
	1 Shaw...	Knight, No. 3.	487								No record.
	2 Shaw...	Knight, No. 2.	472	Stray	700		232	1,263			do.
	3 Shaw...	Knight, No. 1.	468	Bridgeport	815		347	1,153			Gas, 815 feet.
	4 Shaw...	Knight, No. 4.	464	do.	920	36	452	1,048	956		No record.
	5 Shaw...	Knight, No. 5.	462								do.
	6 Shaw...	Harding, No. 1.	462	Bridgeport	947	39	485	1,015	948	986	20 Gas, 948 feet.
	7 Shaw...	Ridgely, No. 1.	471	do.	957	32	486	1,014			Salt water.
				do.	1,025	35	554	946			Gas, 1,205 feet.
				Stray	1,227	17	756	744	1,206		150 Gas, 1,205 feet.
N. W..	1 Shaw...	A. Buchanan, No. 2.	464	Bridgeport	906	47	442	1,058	937	953	60 Gas, 906 feet.
	2 Shaw...	A. Buchanan, No. 10.	464	Stray	720	10	256	1,244			125 Gas, 915 feet.
	3 Shaw...	A. Buchanan, No. 9.	462	Bridgeport	914	48	450	1,050	937	958	150 Gas, 935 feet.
	4 Shaw...	A. Buchanan, No. 11.	462	do.	928	30	466	1,034	937		Dry Salt water, 985 feet.
	5 Shaw...	W. Gillespie, No. 1.	465	Kirkwood	933	122	471	1,029	1,611		Dry Salt water, 1,570 feet.
				do.	1,560	40	1,065	405			Elevation estimated.
				Bridgeport	1,011	9	571	929			
S. W..	1 Shaw...	Buchanan	440	Buchanan	1,300	15	860	640			
		I. Buchanan, No. 1.		Kirkwood	1,622	18	1,182	318			
				Tracey	1,735	16	1,205	205			
				McCleary	1,774	7	1,334	166	1,774	1,781	100 Gas, 1,774 feet.
				Bridgeport	1,000	175	560	940			Salt water, 1,020 feet.
				Buchanan	1,280	120	840	660			Salt water, 1,200 feet.
				Kirkwood	1,600	15	1,160	340			Elevation estimated.
2 Shaw...		J. Buchanan, No. 1.	440	Tracey	1,740	15	1,300	200			
				McCleary	1,777	13	1,337	163	2,017		Dry Show of oil and gas, 1,777 feet.
S. E..	1 Ohio...	Taylor, No. 1.	463	Bridgeport	967	33	494	1,006			
				do.	1,065	25	602	898			Salt water.
				Stray	1,200	44	737	763	1,204	1,246	100 Gas, 1,206 feet.
12- N. E..	1 Ohio...	Des Beauf, No. 1.	470	Bridgeport	940	20	470	1,030			Salt water.
				Buchanan	1,270	110	800	700			Salt water, 1,280 feet.
				Kirkwood	1,615	25	1,145	355			Salt water, 1,630 feet.
				Tracey	1,725	10	1,255	245			Salt water, 1,730 feet.
				McCleary	1,870	20	1,300	200			Salt water, 1,870 feet.
					1,900	15	1,430	70	1,940		Dry Elevation estimated.
N. W..	1 Donnel, Agent.	C. Buchanan, No. 5.	459	Bridgeport	1,045	205	596	914			Salt water.
				Kirkwood	1,630		1,171	329	1,632	1,672	Dry Salt water, 1,665 feet.

## Lawrence County—Dennison Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
19— S. W.	1	Big Four	S. Seed, No. 5.	512	1,639	23	1,127	373	1,644	1,852	30	Salt water, 1,832 feet.
	2	Shamless	S. Seed, No. 2.	508	1,852		1,340	1,045			Show	Salt water, 963 feet.
	3	Big Four	S. Seed, No. 3.	494	1,472	51	964	408	1,600	1,656	100	Salt water, 1,472 feet.
	4	Big Four	S. Seed, No. 2.	487	1,633	15	1,139	361		1,640		Salt water, 1,630 to 1,635 feet.
	5	Big Four	S. Seed, No. 1.	475	1,627	18	1,185	365				
	6	Shamless	S. Seed, No. 1.	490	1,588	31	1,113	387	1,587	1,619		
	7	Big Four	S. Seed, No. 4.	470	1,448	450	450	1,050				Salt water, 940 feet.
	8	Associated Producers	Snyder, No. 10.	477	1,500	34	1,100	400	1,600	1,624	110	Slate, 1,615 to 1,627 feet.
	9	Shamless	Snyder, No. 1.	488	1,587	56	1,117	383	1,600			
	10	Shamless	S. Seed, No. 3.	504	1,315	18	1,109	291		1,650		
	11	Silurian	S. Seed, No. 1.	488	1,628	12	1,151	349				
21— N. E.	1	Ohio	R. Buchanan, No. 6.	467	1,460	945	457	1,043				
	2	Ohio	R. Buchanan, No. 14.	485	1,460	53	1,107	383	1,648			Salt water.
	3	Ohio	R. Buchanan, No. 13.	483	1,595	57	1,091	409	1,625	1,652		do.
	4	Ohio	R. Buchanan, No. 11.	479	1,595	40	302	1,186				do.
	5	Ohio	R. Buchanan, No. 1.	482	1,003	57	545	955				do.
	6	Ohio	Wm. Seed, No. 1.	483	1,345	110	887	613	1,606		Show	Salt water, 1,612 feet.
					1,600	26	1,142	358			Show	Salt water, 1,655 feet.
					1,650	10	1,192	308			Dry	Salt water.
					1,824	5	1,396	134		1,840		
					1,808	17	841	689	1,811	1,825	200	
					1,316	51	831	669	1,330	1,367	190	
					1,805	53	828	677	1,310	1,358	260	
					1,313	37	834	666	1,318	1,350	200	
					1,332	12	850	650	1,344	1,344	200	
					1,331	28	848	652	1,333	1,359	200	

No.	Producers.	Snyder, No. 1.	Snyder, No. 13.	Snyder, No. 6.	Snyder, No. 2.	Forden, No. 2.	Forden, No. 3.	Forden, No. 4.	Forden, No. 5.	Borden, No. 1.	Borden, No. 7.	Borden, No. 6.	Borden, No. 8.	Borden, No. 10.	Borden, No. 9.	Snyder, No. 2.	Snyder, No. 4.	Snyder, No. 9.	Snyder, No. 1.	Snyder, No. 3.	Snyder, No. 6.	Snyder, No. 5.	Leighty, No. 5.
4	Associated Producers.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
5	Associated Producers.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
6	Associated Producers.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
7	Associated Producers.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
8	Ohio.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
9	Ohio.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
10	Ohio.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
11	Ohio.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
12	Ohio.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
13	Ohio.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
14	Ohio.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
15	Ohio.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
1	Ohio.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
2	Ohio.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
3	Ohio.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
4	Ohio.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
5	Ohio.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
6	Ohio.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
7	Ohio.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
8	Ohio.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
9	Ohio.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		
10	Leighty.	464	462	463	462	460	463	464	465	477	471	463	302	490	474	468	470	487	480	481	500		

N. W.

## Lawrence County—Dennison Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face ele-va-tion—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
25— N. W..	11	Leighty.....	Leighty, No. 6.....	510	1,614	38	1,104	396	.....	.....	.....	.....
					1,575	15	1,160	335	.....	.....	.....	.....
					1,703	32	1,133	307	.....	1,896	9	Salt water, 1,892 feet.
	12	Leighty.....	Leighty, No. 3.....	487	1,844	18	1,334	166	.....	.....	15	Tracey sand, dry.
					1,574	40	1,087	413	.....	1,588	.....	.....
					1,691	25	1,204	296	.....	.....	.....	.....
	13	Leighty.....	Leighty, No. 7.....	490	1,604	8	1,114	296	.....	.....	.....	.....
					1,615	18	1,125	376	.....	.....	.....	.....
					1,645	11	1,155	345	.....	.....	.....	.....
	14	Ohio.....	Snyder, No. 8.....	502	1,830	29	1,340	160	.....	1,859	200	Salt water, 1,020 feet.
					1,000	180	498	1,002	.....	.....	.....	Salt water, 1,350 feet.
					1,320	120	818	682	.....	.....	.....	Gas, 1,609 feet.
	15	Ohio.....	Snyder, No. 7.....	495	1,905	25	1,103	397	1,612	.....	.....	Gas, 1,720 feet.
					1,720	10	1,218	282	1,721	.....	.....	Gas, 1,832 feet.
					1,832	6	1,350	170	1,833	1,855	175	Salt water, 1,125 feet.
S. W..	1	Ohio.....	Vandermark, No. 16.....	495	1,060	150	555	945	.....	.....	.....	Salt water, 1,320 feet.
					1,832	130	905	695	.....	.....	.....	Gas, 1,623 feet.
					1,708	30	1,177	373	1,628	.....	20	.....
	1	Ohio.....	Vandermark, No. 16.....	495	1,708	12	1,213	267	.....	.....	.....	.....
					1,834	10	1,359	161	1,834	2,000	.....	.....
					1,000	75	508	945	.....	.....	.....	.....
	2	Ohio.....	Vandermark, No. 11.....	512	1,280	120	788	715	.....	.....	.....	.....
					1,620	13	1,125	375	.....	.....	.....	.....
					1,715	3	1,220	280	.....	1,833	100	Gas, 1,826 feet.
	2	Ohio.....	Vandermark, No. 11.....	512	1,826	45	1,531	169	1,826	.....	.....	Salt water.
					1,065	75	813	957	.....	.....	.....	Salt water.
					1,226	17	1,111	687	.....	.....	.....	.....
	2	Ohio.....	Vandermark, No. 11.....	512	1,623	16	1,208	292	.....	.....	.....	.....
					1,720	7	1,326	171	1,842	1,850	850	Gas, 1,841 feet.
					1,841	7	1,326	171	.....	.....	.....	.....

6 Ohio.....	Irwin, No. 2.....	514	do.....	1,604	55	1,000	410	1,617	1,659	85 Gas, 1,617 feet.
7 Ohio.....	Irwin, No. 4.....	480	Buchanan.....	1,262	118	802	698	1,612	1,665	40 Gas, 1,612 feet.
8 Ohio.....	Irwin, No. 5.....	464	Kirkwood.....	1,612	63	1,132	368	1,612	1,665	30 Gas, 1,612 feet.
9 Ohio.....	Irwin, No. 3.....	459	Kirkwood.....	1,618	33	1,154	346	1,618	1,651	100 Gas, 1,630 feet.
10 Ohio.....	Irwin, No. 1.....	519	do.....	965	55	525	974	1,630	1,624	50 Gas, 1,528 feet.
1 Ohio.....	T. Gillespie, No. 5.....	501	do.....	1,578	69	1,117	383	1,528	1,658	Dry
2 Ohio.....	T. Gillespie, No. 19.....	469	do.....	1,530	27	1,009	491	1,538	1,568	60 Gas, 1,538 feet.
3 Ohio.....	T. Gillespie, No. 16.....	466	do.....	1,538	14	1,069	431	1,538	1,566	50 Gas, 1,546 feet.
4 Ohio.....	T. Gillespie, No. 13.....	460	do.....	1,527	29	1,061	439	1,546	1,556	50 Gas, 1,546 feet.
5 Ohio.....	T. Gillespie, No. 11.....	465	Bridgeport and Buchanan.....	1,100	104	640	860	1,537	1,552	50 Gas, 1,537 feet.
1 Ohio.....	Ryan, No. 8.....	431	Kirkwood.....	1,537	15	1,077	1,026	941	967	100
2 Ohio.....	Ryan, No. 9.....	432	do.....	939	28	474	376	1,560	1,601	20 Salt water, 1,582 feet.
3 Ohio.....	Ryan, No. 12.....	432	do.....	1,555	40	1,124	401	1,531	1,576	Salt water.
4 Ohio.....	Ryan, No. 13.....	429	Bridgeport.....	1,531	30	1,060	403	1,532	1,768	900
5 Ohio.....	Ryan, No. 3.....	428	do.....	900	345	468	1,032	1,564	1,569	Flowing from McClosky sand.
6 Ohio.....	Ryan, No. 1.....	427	Kirkwood.....	1,525	55	1,063	407	1,772	1,775	Tracey sand absent. Flowing well. Gas, 1,763 feet.
7 Unknown.....	School House Lot.....	427	McClosky.....	1,771	3	1,339	161	1,564	200	No record.
8 Ohio.....	G. Ryan, No. 4.....	427	Bridgeport.....	1,920	160	491	1,009	1,554	1,569	Slate, 1,542 to 1,547 feet.
9 Ohio.....	G. Ryan, No. 11.....	430	Buchanan.....	1,260	85	831	669	1,515	1,551	Salt water, 950 feet.
10 Ohio.....	G. Ryan, No. 10.....	427	Kirkwood.....	1,525	25	1,066	404	1,524	1,556	20 Gas, 1,524 feet.
11 Ohio.....	G. Ryan, No. 7.....	427	do.....	1,763	163	508	992	1,530	1,545	25 Gas, 1,530 feet.
12 Ohio.....	G. Ryan, No. 6.....	430	do.....	1,506	37	1,078	422	1,515	1,551	150
13 Ohio.....	G. Ryan, No. 5.....	432	do.....	1,547	16	1,120	380	1,534	1,567	140
14 Ohio.....	G. Ryan, No. 2.....	432	do.....	911	189	481	1,019	1,547	1,583	Well abandoned.
1 Ohio.....	T. Gillespie, No. 3.....	436	Kirkwood-1.....	1,250	80	820	680	1,590	1,576	125 Gas, 1,510 feet.
2 Ohio.....	T. Gillespie, No. 6.....	440	Kirkwood-2.....	1,537	28	1,058	442	1,515	1,554	230 Gas, 1,515 feet.
3 Ohio.....	T. Gillespie, No. 23.....	435	do.....	1,542	2	1,110	360	1,547	1,564	25 Gas, 1,525 feet.
			Kirkwood-1.....	1,586	15	1,183	347	1,590	1,560	
			Kirkwood-2.....	1,510	15	1,074	426	1,515	1,576	
			Kirkwood-3.....	1,534	15	1,074	426	1,515	1,576	
			Kirkwood-4.....	1,515	39	1,068	402	1,515	1,576	
			Bridgeport.....	965	135	530	970	1,515	1,576	
			Buchanan.....	1,250	80	815	685	1,520	1,560	
			Kirkwood.....	1,515	49	1,060	420	1,520	1,560	

## Lawrence County—Dennison Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
23— N. W.	4	Ohio.....	T. Gillespie, No. 22.....	430	Bridgport.....	925	175	495	1,005	.....	.....	.....	.....
	5	Ohio.....	T. Gillespie, No. 17.....	487	Buchanan.....	1,250	80	820	1,680	.....	.....	.....	.....
	6	Ohio.....	T. Gillespie, No. 7.....	481	Kirkwood.....	1,497	34	1,067	433	1,500	1,559	30 Gas, 1,520 feet.	.....
	7	Ohio.....	T. Gillespie, No. 8.....	492	do.....	1,538	50	1,051	449	1,542	1,578	35 Gas, 1,542 feet.	.....
	8	Ohio.....	T. Gillespie, No. 9.....	504	Buchanan.....	1,540	107	1,059	441	1,584	1,600	40 Gas, 1,584 feet.	.....
	9	Ohio.....	T. Gillespie, No. 10.....	466	Kirkwood.....	1,263	107	1,001	669	.....	.....	.....	.....
	10	Ohio.....	T. Gillespie, No. 11.....	450	Buchanan.....	1,570	106	1,078	422	1,576	1,617	25 Gas, 1,576 feet.	.....
S. W.	1	Ohio.....	T. Gillespie, No. 12.....	466	Buchanan.....	1,264	106	1,078	710	.....	.....	.....	.....
	2	Ohio.....	T. Gillespie, No. 13.....	449	Bridgport.....	1,577	80	1,073	427	1,594	1,637	30 Gas, 1,594 feet.	.....
	3	Ohio.....	T. Gillespie, No. 14.....	447	Bridgport.....	1,554	22	1,488	1,012	954	.....	200	.....
	4	Ohio.....	T. Gillespie, No. 15.....	447	Buchanan.....	1,197	153	747	753	.....	.....	.....	.....
	5	Ohio.....	T. Gillespie, No. 16.....	449	Kirkwood.....	1,528	37	1,076	424	1,549	1,583	45 Gas, 1,549 feet.	.....
	6	Ohio.....	T. Gillespie, No. 17.....	447	do.....	1,515	37	1,066	434	1,520	1,552	60 Gas, 1,520 feet.	.....
	7	Ohio.....	T. Gillespie, No. 18.....	449	Kirkwood-1.....	1,504	39	1,057	443	1,535	.....	50 Gas, 1,535 feet.	.....
S. E.	1	Ohio.....	T. Gillespie, No. 19.....	447	Kirkwood-2.....	1,625	19	1,178	322	1,648	.....	.....	.....
	2	Ohio.....	T. Gillespie, No. 20.....	449	Kirkwood.....	1,500	47	1,053	447	1,520	1,529	100 Gas, 1,515 feet.	.....
	3	Ohio.....	T. Gillespie, No. 21.....	430	do.....	1,524	70	1,075	425	1,524	1,532	30 Gas, 1,524 feet.	.....
	4	Ohio.....	T. Gillespie, No. 22.....	430	do.....	1,487	463	1,037	463	1,511	1,557	125 Gas, 1,535 feet.	.....
	5	Ohio.....	T. Gillespie, No. 23.....	430	Bridgport.....	900	40	470	1,030	.....	.....	45 Gas, 1,510 feet.	.....
	6	Ohio.....	T. Gillespie, No. 24.....	430	Kirkwood.....	1,490	55	1,060	440	1,510	1,546	45 Salt water, 950 feet.	.....
	7	Ohio.....	T. Gillespie, No. 25.....	430	Bridgport.....	925	75	495	1,005	.....	.....	.....	.....
S. E.	1	Ohio.....	Gould, No. 1.....	445	Buchanan.....	1,250	80	820	1,680	.....	.....	.....	.....
	2	Ohio.....	Gould, No. 2.....	445	Kirkwood.....	1,504	46	1,074	426	1,510	1,553	25 Gas, 1,510 feet.	.....
	3	Ohio.....	Gould, No. 3.....	428	do.....	1,514	51	1,069	431	1,544	1,585	125 Gas, 1,544 feet.	.....
	4	Ohio.....	Gould, No. 4.....	427	do.....	1,490	48	1,002	438	1,500	1,546	160 Gas, 1,520 feet.	.....
	5	Ohio.....	Gould, No. 5.....	427	Bridgport.....	900	40	470	1,030	.....	.....	.....	.....
	6	Ohio.....	Gould, No. 6.....	427	Kirkwood.....	1,490	50	1,063	437	1,518	1,547	15 Gas, 1,520 feet.	.....
	7	Ohio.....	Gould, No. 7.....	427	Bridgport.....	930	200	503	937	.....	.....	.....	.....
S. E.	1	Ohio.....	Gould, No. 8.....	427	Buchanan.....	1,260	70	833	667	.....	.....	.....	.....
	2	Ohio.....	Gould, No. 9.....	427	Kirkwood.....	1,496	58	1,099	431	1,521	1,556	25 Gas, 1,521 feet.	.....
	3	Ohio.....	Gould, No. 10.....	427	Buchanan.....	1,214	166	767	713	.....	.....	.....	.....
S. E.	1	Ohio.....	Gould, No. 11.....	427	Kirkwood.....	1,517	159	1,090	410	1,517	1,576	80 Gas, 1,517 feet.	.....
	2	Ohio.....	Gould, No. 12.....	427	Kirkwood.....	1,517	159	1,090	410	1,517	1,576	80 Gas, 1,517 feet.	.....





## Lawrence County—Dennison Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
24— S. E.	1	Shannon.....	Crutchfield, No. 1.....	467	1,050	70	583	917	.....	.....	.....	.....
	2	Central Refining Co.....	Hollister, No. 3.....	470	1,185	275	718	782	1,606	1,648	10	Salt water, 1,643 feet.
	3	Central Refining Co.....	Hollister, No. 2.....	480	1,590	58	1,123	377	1,596	1,639	.....	.....
	4	Shannon.....	Crutchfield, No. 2.....	511	1,578	61	1,108	392	1,630	1,653	.....	Salt water, 1,430 feet.
	5	Central Refining Co.....	Hollister, No. 1.....	509	1,635	115	554	946	.....	.....	.....	.....
	6	Busch-Everett.....	Gee, No. 1.....	505	1,350	48	1,107	393	1,640	1,667	40	Salt water, 1,380 feet.
	7	Busch-Everett.....	Gee, No. 2.....	503	1,618	51	1,005	405	.....	.....	.....	.....
25— N. E.	1	Associated Producers.....	Snyder, No. 12.....	466	1,604	10	1,201	299	.....	.....	.....	.....
	2	Associated Producers.....	Snyder, No. 3.....	463	1,710	11	1,315	186	.....	.....	.....	.....
	3	Associated Producers.....	Snyder, No. 4.....	462	1,824	11	1,315	186	.....	.....	.....	.....
	4	Shannon.....	Crutchfield, No. 2.....	511	1,075	.....	570	930	.....	.....	.....	.....
	5	Central Refining Co.....	Hollister, No. 1.....	509	1,360	.....	855	645	.....	.....	.....	.....
	6	Busch-Everett.....	Gee, No. 1.....	505	1,677	.....	1,172	328	.....	.....	.....	.....
	7	Busch-Everett.....	Gee, No. 2.....	503	1,925	.....	422	1,078	.....	.....	.....	.....
	8	Shannon.....	Crutchfield, No. 2.....	511	1,470	.....	967	533	.....	.....	.....	.....
	9	Shannon.....	Crutchfield, No. 2.....	511	1,651	.....	1,148	352	.....	.....	.....	.....
	10	Shannon.....	Crutchfield, No. 2.....	511	1,651	.....	1,148	352	.....	.....	.....	.....

4	Associated Producers.....	Snyder, No. 1.....	464	Bridgeport. Buchanan	885 1,300	21 536	421 836	1,070 664		
				Kirkwood	1,580	40	1,116	384	150	
5	Associated Producers.....	Snyder, No. 13.....	462	Bridgeport. Buchanan	985 1,305	10 433	831 1,067	1,620 657		
				Kirkwood	1,580	32	1,118	382	180	
6	Associated Producers.....	Snyder, No. 6.....	463	Bridgeport. Buchanan	985 1,305	12 432	832 1,068	1,615 658		
				Kirkwood	1,578		1,115	378	160	
7	Associated Producers.....	Snyder, No. 2.....	462	do.	1,584		1,120	375	100	
8	Ohio.....	Borden, No. 2.....	460	do.	1,578	32	1,118	382	50	Well abandoned
9	Ohio.....	Borden, No. 3.....	460	do.	1,579	30	1,119	381	25	Gas, 1,588 feet.
10	Ohio.....	Borden, No. 4.....	463	do.	1,580	34	1,117	383	1,614	Dry
				do.	1,588		1,121	378		
11	Ohio.....	Borden, No. 5.....	464	Tracy	1,588		1,121	378		
12	Ohio.....	Borden, No. 1.....	465	Kirkwood-1	1,710	17	1,246	374	1,715	Dry
				Kirkwood-2	1,591	30	1,120	374	1,595	Gas, 1,595 feet.
13	Ohio.....	Borden, No. 7.....	477	Tracy	1,591	30	1,120	374		
				Tracy	1,721	25	1,163	357		
14	Ohio.....	Borden, No. 6.....	471	McClosky	1,822	33	1,325	380	1,835	Salt water, 1,833 feet.
15	Ohio.....	Borden, No. 8.....	463	Kirkwood	1,581	30	1,120	380	1,592	Gas, 1,592 feet.
				McClosky	1,797	8	1,334	371	1,795	Gas, 1,597 feet.
				Bridgeport.	1,975	95	473	1,027	1,905	Salt water, 1,008 feet.
				Buchanan	1,640	30	1,138	362		Salt water, 1,650 feet.
1	Ohio.....	Borden, No. 10.....	502	Buchanan	1,720	30	1,218	352		Dry
				Tracy	1,828	12	1,326	368	1,828	Dry well.
2	Ohio.....	Borden, No. 9.....	490	McClosky	1,828	23	1,332	368	1,832	
				McClosky	1,588	23	1,328	362	1,592	Gas, 1,842 feet.
3	Ohio.....	Snyder, No. 2.....	474	Kirkwood	1,600	12	1,124	376	1,607	Gas, 1,605 feet.
				Kirkwood	1,600	12	1,124	366	1,703	
4	Ohio.....	Snyder, No. 4.....	466	Tracy	1,697	16	1,231	369	1,716	Gas, 1,700 feet.
				Bridgeport.	1,975	25	505	995		
				Buchanan	1,300	75	830	373		
5	Ohio.....	Snyder, No. 9.....	470	Buchanan	1,597	28	1,127	370	1,600	Gas, 1,598 feet.
				Kirkwood	1,700	15	1,230	370	1,704	Gas, 1,700 feet.
				Tracy	1,823	5	1,333	371	1,823	Salt water, 1,829 feet.
6	Ohio.....	Snyder, No. 1.....	470	McClosky	1,596	9	1,126	374	1,597	Gas, 1,590 feet.
7	Ohio.....	Snyder, No. 3.....	487	Kirkwood	1,604	26	1,117	383	1,612	Gas, 1,611 feet.
				do.	1,075	100	595	905		
				Bridgeport.	1,300	100	630	680		Salt water, 1,100 feet.
8	Ohio.....	Snyder, No. 6.....	490	Buchanan	1,606	30	1,126	374	1,618	Salt water, 1,300 feet.
				Kirkwood	1,696	13	1,215	375	1,696	Gas, 1,616 feet.
				Tracy	1,827	6	1,347	353	1,833	
9	Ohio.....	Snyder, No. 5.....	481	McClosky	1,646	14	1,165	335	1,833	
				Kirkwood	1,772	13	1,261	309	1,776	Gas, 1,774 feet.
				McClosky	1,621	24	1,121	379	1,622	
10	Leighty.....	Leighty, No. 5.....	500	Kirkwood-1	1,657	23	1,157	343	1,667	Salt water, 1,674 feet.
				Kirkwood-2	1,707	23	1,157	343	1,708	
				Tracy	1,707	14	1,207	363	1,725	

**N. W.:**

## Lawrence County—Dennison Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
25— N. W.	11	Leighty.	Leighty, No. 6.	510	Kirkwood-1.....	1,614	38	396				
					Kirkwood-2.....	1,675	15	335				
					Tracey.....	1,703	32	307				
					McClosky.....	1,944	18	1,934			9	Salt water, 1,832 feet.
	12	Leighty.	Leighty, No. 3.	487	Kirkwood.....	1,574	40	1,567		1,866	15	Tracey sand, dry.
					Tracey.....	1,691	25	1,704		1,588		
					Kirkwood-1.....	1,804	8	1,114				
					Kirkwood-2.....	1,815	18	1,125				
	13	Leighty.	Leighty, No. 7.	490	Kirkwood-3.....	1,645	11	1,155				
					McClosky.....	1,830	29	1,240		1,859	200	
					Bridgeport.....	1,000	190	498				Salt water, 1,020 feet.
					Buchanan.....	1,320	120	818				Salt water, 1,350 feet.
	14	Ohio.	Snyder, No. 8.	502	Kirkwood.....	1,605	25	1,108		1,612		Gas, 1,609 feet.
					Tracey.....	1,720	10	1,218		1,721		Gas, 1,720 feet.
					McClosky.....	1,832	6	1,330		1,833	175	Gas, 1,832 feet.
					Bridgeport.....	1,050	150	555		945		Salt water, 1,125 feet.
	15	Ohio.	Snyder, No. 7.	495	Buchanan.....	1,300	130	805				Salt water, 1,320 feet.
					Kirkwood.....	1,632	30	1,177		1,628		Gas, 1,623 feet.
					Tracey.....	1,708	12	1,213				
					McClosky.....	1,834	10	1,339		1,834	20	
S. W.	1	Ohio.	Vandermark, No. 16.	495	Bridgeport.....	1,000	75	595				
					Buchanan.....	1,260	120	785				
					Kirkwood.....	1,620	13	1,125				
					Tracey.....	1,715	3	1,220				
	2	Ohio.	Vandermark, No. 11.	512	McClosky.....	1,826	3	1,331		1,826	100	Gas, 1,826 feet.
					Bridgeport.....	1,055	45	543		957		Salt water.
					Buchanan.....	1,225	75	813		687		Salt water.
					Kirkwood.....	1,623	17	1,111		689		
					Tracey.....	1,720	15	1,375				
					McClosky.....	1,841	7	1,339		1,842	850	Gas, 1,841 feet.



## Lawrence County—Dennison Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
25— S. E.	2	Ohio.....	Vandermark, No. 9.....	500	Bridgeport.....	980	120	480	1,020			Salt water, 1,005 feet.
					Buchanan.....	1,285	195	785	715			Salt water, 1,330 feet.
					Kirkwood.....	1,405	30	1,105	395			
					Tracey.....	1,710	10	1,210	290			
					McClosky.....	1,828	12	1,298	172			
	3	Ohio.....	Vandermark, No. 12.....	495	Stray.....	1,808	90	1,368	102	2,101	Dry	
					Bridgeport.....	1,860	100	1,465	1,035			Salt water, 1,000 feet.
					Buchanan.....	1,300	100	905	395			Salt water, 1,350 feet.
					Kirkwood.....	1,512	33	1,210	280			
					Tracey.....	1,705	19	1,237	163			40 Gas, 1,833 feet.
	4	Ohio.....	Vandermark, No. 8.....	489	McClosky.....	1,832	10	1,237	382			
					Kirkwood.....	1,807	37	1,118	366	1,823	1,200	Gas, 1,822 feet.
					McClosky.....	1,823	110	1,331	1,019			Salt water, 1,005 feet.
					Bridgeport.....	1,385	86	878	324			Salt water, 1,400 feet.
					Buchanan.....	1,817	30	1,350	392			Salt water, 1,318 feet.
	5	Ohio.....	Vandermark, No. 13.....	509	Kirkwood.....	1,839	6	1,350	170	1,845	1,860	Gas, 1,839 feet.
					McClosky.....	1,829	29	1,167	383	1,646	160	Gas, 1,620 feet.
					Kirkwood.....	1,016	728	1,074	1,074			
					Bridgeport.....	1,328	100	828	571			
					Buchanan.....	1,316	24	1,117	383	1,620	125	
	7	International Oil & Gas Co.....	McClosky, No. 2.....	499	Kirkwood.....	1,016	24	1,117	383	1,620	125	
					Tracey.....	1,710	10	1,211	289			
					McClosky.....	1,842	210	1,243	137			Salt water.
					Bridgeport.....	1,000	210	822	978			do.
					Buchanan.....	1,328	100	847	683			
	8	International Gas & Oil Co.....	McClosky, No. 5.....	478	Kirkwood.....	1,025	60	1,147	383			Calcareous sand.
					Tracey.....	1,946	35	1,217	283			Soft limestone.
					McClosky.....	1,820	11	1,342	158	1,820	300	
					Kirkwood.....	1,005	26	1,122	378			
					McClosky.....	1,820	16	1,337	103			
	9	International Oil & Gas Co.....	McClosky, No. 7.....	463	Kirkwood.....	1,005	26	1,122	378			
					McClosky.....	1,820	16	1,337	103			

10	International Oil & Gas Co.	McCloosky, No. 6.	472	Kirkwood-Tracey	1,602 1,712 1,804	18 12 11	1,130 1,240 1,332	370 260 168	1,815 1,200		
11	International Oil & Gas Co.	McCloosky, No. 3.	469	Bridgeport-Buchanan	985 1,330 1,587	195 100 41	616 861 1,118	984 639 332			
12	Associated Producers.	Snyder, No. 11.	468	Tracey-Bridgeport-Buchanan	1,692 1,807 894	20 4 12	1,223 1,338 844	277 1,700 1,073	1,811 1,807	400	
13	Associated Producers.	Snyder, No. 14.	462	Tracey-Bridgeport-Buchanan	1,312 1,580 1,700	32 13 14	1,112 1,232 1,336	388 288 1,084		60	
14	Associated Producers.	Snyder, No. 5.	460	Tracey-Bridgeport-Buchanan	1,312 1,578 1,794	44 44 44	850 1,116 1,332	650 384 1,796	1,804	200	
15	Associated Producers.	Snyder, No. 16.	468	Tracey-Bridgeport-Buchanan	900 1,307	83	847	653	1,360	Dry	No record
16	Associated Producers.	Snyder, No. 15.	474								do
17	Associated Producers.	Snyder, No. 17.	465								do
18	International Oil & Gas Co.	Seed, No. 2.	477	Kirkwood	1,615	40	1,138	362		60	Well abandoned
19	International Oil & Gas Co.	Seed, No. 3.	485								No record
20	International Oil & Gas Co.	Seed, No. 4.	487								do
21	International Oil & Gas Co.	Seed, No. 1.	487	Kirkwood	1,600	20	1,113	387			Well abandoned
1	Leighty	Leighty, No. 2.	462	do-Tracey	1,553 1,650	5 33	1,091 1,188	409 312	1,567 1,669	Light	Salt water, 1,683 feet. Locally known as Mul-holland sand. Original well ruined. No record
2	Leighty	Leighty, No. 8.	488	Kirkwood-1	1,591	17	1,103	397			
3	Leighty	Leighty, No. 8.	488	Kirkwood-2	1,638	19	1,150	350			
4	Leighty	Leighty, No. 1.	485	Tracey	1,687	10	1,190	301			
5	Leighty	Leighty, No. 9.	484	McCloosky	1,827	34	1,339	161	1,861	20	
6	Leighty	Leighty, No. 10.	501	Kirkwood-Bridgeport	1,546 961	33 28	1,081 477	419 1,023	1,558 989	50 10	
7	Leighty	Leighty, No. 4.	492	Bridgeport-Buchanan	979 1,207	36 15	487 805	1,013 685	965 1,297		Drilling
8	Big Four.	S. Gillespie, No. 4.	500	Kirkwood-1	1,575	28	1,083	417	1,597		
				Kirkwood-2	1,608	12	1,116	384	1,608		
				Tracey	1,698	22	1,206	294	1,743	200	
				Kirkwood-1	1,598	14	1,098	402	1,602		
				Kirkwood-2	1,625	13	1,125	375	1,625	50	
				Tracey	1,698	27	1,198	302	1,198		
				McCloosky	1,836		1,336	164	1,836	1,855	Show







## Lawrence County—Dennison Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
26— S. E.	15	Big Four	S. Gillespie, No. 5.	494	Kirkwood.	1,590	35	1,006	404	1,600	150	
					Tracey.	1,688	32	1,194	308			
	16	Big Four	S. Gillespie, No. 3.	507	McCleaky.	1,812	2	1,318	182	1,855		
					Kirkwood.	1,596	30	1,088	412			
	17	Ohio.	G. Ryan, No. 12.	504	Tracey.	1,693	27	1,186	314	1,920	120	
					McCleaky.	1,841	28	1,234	166			
					Bridgeport.	1,080	60	576	924			
					Buchanan.	1,285	90	781	719			Salt water, 1,115 feet.
	18	Ohio.	G. Ryan, No. 13.	494	Kirkwood.	1,595	32	1,091	409	1,597	100	Salt water, 1,300 feet.
					Tracey.	1,709	11	1,205	285	1,712		Gas, 1,596 feet.
					McCleaky.	1,826	43	1,322	178	1,827	300	Gas, 1,711 feet.
					Bridgeport.	975	25	481	1,019			Gas, 1,827 feet.
27— N. E.	1	Ohio.	T. Gillespie, No. 1.	454	Buchanan.	1,300	100	806	694	1,600		Salt water, 1,330 feet.
					Kirkwood.	1,592	35	1,098	402	1,603		Gas, 1,592 feet.
	2	Ohio.	T. Gillespie, No. 24.	462	Tracey.	1,693	10	1,199	301	1,695		Gas, 1,693 feet.
					McCleaky.	1,802	4	1,308	192	1,802		Gas, 1,802 feet.
	3	Ohio.	L. Gillespie, No. 4.	466	Kirkwood.	1,468		1,044	456	1,510	25	
					Bridgeport.	940	110	478	1,022			
	4	Ohio.	L. Gillespie, No. 3.	454	Buchanan.	1,225	100	783	737	1,542	10	Gas, 1,620 feet.
					Kirkwood.	1,520	38	1,058	442	1,745		Salt water, 1,000 feet.
	5	Ohio.	L. Gillespie, No. 2.	458	Bridgeport.	950	100	484	1,016			
					Buchanan.	1,230	130	764	736			
N. W.	1	Ohio.	L. Gillespie, No. 1.	515	Kirkwood.	1,514	13	1,048	452	1,514	50	Gas, 1,515 feet.
					do.	1,505		1,051	449	1,510	30	Gas, 1,510 feet.
	2	Ohio.	E. Gillespie, No. 1.	515	do.	1,515	31	1,057	443	1,520	25	Gas, 1,515 feet.
					Buchanan.	1,243	32	731	769	1,253	200	Gas, 1,515 feet.
	3	Ohio.	E. Gillespie, No. 2.	508	do.	1,255		740	760	1,260	225	Well abandoned.
					Kirkwood.	1,622	10	1,114	396	1,700	Dry	
	3	Ohio.	E. Gillespie, No. 3.	517	Bridgeport and Buchanan.	1,100	170	583	917			
					Kirkwood.	1,815	47	1,068	402	1,662	Dry	

S. W.	4 Fisher	Lackey, No. 1	505	Bridgeport	880	46	449	1,051	1,005	1,026	Dry No record.
	1 Ohio	Wm. Seed, No. 1	531	do.	977	52	449	1,051	995	1,034	Gas Gas, 998 feet; gas 2,500,000 cu. ft. daily.
S. E.	2 Ohio	P. Leighty, No. 13	528	do.	960	47	455	1,045	961	1,007	30 Gas, 995 feet.
	3 Ohio	P. Leighty, No. 1	534	do.	970	43	436	1,064	1,000	1,000	Gas Gas, 1,000 feet.
	4 Ohio	P. Leighty, No. 5	540	do.	985	21	445	1,055	1,031	1,056	Gas Gas, 998 feet.
	5 Ohio	P. Leighty, No. 15	513	do.	1,012	44	472	1,028	1,031	1,056	20
				Buchanan	960	140	447	1,053			60 Gas, 1,580 feet. Quit in sand.
				Kirkwood	1,260	110	747	753	1,580	1,604	
				Bridgeport	1,577	23	1,064	436	1,031		
				Buchanan	965	105	469	1,031			
				Kirkwood	1,254	22	758	742			
				Buchanan	1,538	35	1,042	458	1,540	1,573	75 Gas, 1,540 feet.
28- N. W.	1 Unknown	E. Robbins, No. 1	496	do.	1,510	110	1,032	468			No record.
	2 Ohio	H. K. Seed, No. 1	478	Buchanan	1,960	15	1,482	18	1,962	2,063	Show Salt water, 1,960 feet. Well abandoned.
S. E.	1 St. Louis	E. Gillespie, No. 4	498	do.							Dry No record.
	2 St. Louis	Turner Hrs. No. 2	508	do.							Dry No record.
30- N. E.	1 Ohio	Turner Hrs. No. 1	490	do.							Dry
		R. Ackman, No. 1	478	Kirkwood	1,587	25	1,107	393	1,602	1,810	11 Gas, 1,598 feet. Salt water, 1,615 feet. Well abandoned.
N. W.	1 Central Refining Co.	Snyder, No. 2	478	do.	1,596	51	1,106	392	1,596	1,637	
	2 Associated Producers	Snyder, No. 8	469	Buchanan	1,315	22	1,113	387			
	3 Associated Producers	Snyder, No. 7	474	Kirkwood-1	1,582	12	1,159	341	1,643		
	4 Associated Producers	Snyder, No. 9	469	Kirkwood-2	1,628	12	1,159	341			
	5 Associated Producers	Barnhart, No. 4	467	Buchanan	1,315	22	1,106	394			
	6 Associated Producers	Barnhart, No. 5	460	Kirkwood-1	1,590	22	1,106	394	1,648		
	7 Associated Producers	Barnhart, No. 6	458	Kirkwood-2	1,630	15	1,156	344			
S. W.	1 Associated Producers	Barnhart, No. 1	456	Kirkwood-1	1,584	22	1,115	385			
	2 Associated Producers	Barnhart, No. 2	456	Kirkwood-2	1,628	14	1,159	341	1,645		
	3 Associated Producers	Barnhart, No. 3	456	Stray	700	23	1,287				
	4 Busch-Everett	Vandermark, No. 1	460	Bridgeport	960	483	1,007				
	5 Busch-Everett	Vandermark, No. 2	454	Buchanan	1,300	18	833	667	1,660		Dry No Kirkwood sand.
				Kirkwood	1,600	5	1,140	390	1,650		
				Buchanan	1,300	5	842	658			
				Kirkwood	1,602	18	1,144	356	1,640		
				Bridgeport	902	34	446	1,064	902		
				Buchanan	1,305	180	849	651			
				Kirkwood	1,565	16	1,169	391	1,565	1,600	
				Bridgeport	960	520	980				Dry No record.
				Stray	1,388	926	575				
				Kirkwood	1,620	1,160	340				
				do.	1,600	1,146	354				Dry

## Lawrence County—Dennison Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
31— N. W.	1	Ohio.	Vanwey, No. 5.	460	Bridgeport.	950	25	490	1,010			
					Buchanan.	1,200	90	740	760			
					Kirkwood.	1,585	16	1,105	305	1,573	1,581	Gas, 1,565 feet.
					Bridgeport.	1,590	80	1,524	976			Salt water, 1,010 feet.
S. W.	2	Ohio.	Vanwey, No. 4.	456	Buchanan.	1,590	80	824	646			Salt water, 1,300 feet.
					Kirkwood.	1,556	21	1,100	400	1,562	1,578	Gas, 1,560 feet.
					do.	1,556	21	1,100	393			
					Tracey.	1,527	43	1,305	183			Salt water, 1,808 feet.
S. E.	1	Ohio.	Vanwey, No. 2.	460	Moclosky.	1,765	50	1,410	90	2,000		Salt water, 1,915 and 1,975 feet.
					Kirkwood-1.	1,585	25	1,105	395	1,570		Gas, 1,575 feet.
					Kirkwood-2.	1,610	3	1,150	359	1,699		Salt water.
					Burkett, No. 2.	1,530	112	1,112	338	1,579	1,600	Gas, 1,575 feet.
32— S. W.	4	Ohio.	Vanwey, No. 3.	449	Bridgeport.	1,800	185	531	689			Salt water, 1,040 feet.
					Buchanan.	1,240	125	811	639			Salt water, 1,275 feet.
					Kirkwood.	1,595	37	1,117	383	1,573	1,603	Gas, 1,572 feet.
					do.	1,584	30	1,544	386			
34— N. E.	5	Ohio.	E. Leighty, No. 3.	420	do.	1,945	36	1,525	375	1,901		Salt water, 1,954 feet.
					Jordan, No. 4.	1,545	101	1,512	373	1,546	1,717	Gas, 1,610 feet.
					Bridgeport.	834						Dry
					Burkett, No. 1.	1,540	10	1,28	372	1,540		Dry
34— N. E.	1	Ohio.	Seed, No. 1.	412	Kirkwood-1.	1,575	6	1,163	337	1,608		25 Salt water, 1,590 feet.
					Kirkwood-2.							Well abandoned.
					Bridgeport.	976	51	443	1,057	1,001	1,027	25 Gas, 986 feet.
					do.	968	12	436	1,064			Gas, 954 feet.
34— N. E.	2	Ohio.	L. Vandermark, No. 1.	317	do.	972	48	432	1,058	1,000	1,020	25 Gas, 978 feet.
					do.	968	32	450	1,050	1,013	1,030	20 Gas, 999 feet.
					do.	957		434	1,046			Gas, 977 feet.
					do.	955	2	455	1,045			Gas, 947 feet.

7 Ohio	Geo. No. 12.	532	do.	985	45	453	1,047	1,010	1,016	55 Gas, 1,010 feet.
8 Ohio	Geo. No. 8.	543	do.	980	26	447	1,053	1,004	1,016	20 Gas, 1,000 feet.
9 Ohio	Geo. No. 9.	521	do.	951	70	450	1,070	1,011	1,021	20 Gas, 1,000 feet.
10 Ohio	Geo. No. 10.	536	do.	993	41	457	1,040	1,020	1,034	60 Gas, 1,000 feet.
11 Ohio	Geo. No. 13.	539	Buchanan.	1,300	84	447	1,053	1,033	1,034	Salt water.
			Kirkwood.	1,600	100	761	739	1,600	1,634	135 Gas, 1,600 feet. Quit in sand.
12 Ohio	Geo. No. 4.	544	Bridgeport	992	37	448	1,032	1,011	1,029	45 Gas, 985 feet.
13 Ohio	Geo. No. 11.	532	do.	998	32	466	1,034	1,000	1,030	125 Gas, 999 feet.
14 Ohio	Geo. No. 6.	539	do.	989	46	450	1,050	1,010	1,035	50 Gas, 990 feet.
15 Ohio	Geo. No. 1.	539	do.	975	436	436	1,064	995	990	Gas, well abandoned.
16 Ohio	Geo. No. 7.	543	do.	965	45	422	1,073	995	1,010	60 Gas, 978 feet.
17 Ohio	H. Gould, No. 2.	532	do.	959	58	427	1,073	1,000	1,017	100 Gas, 985 feet.
18 Ohio	H. Gould, No. 3.	534	do.	953	71	419	1,081	1,000	1,024	50 Gas, 983 feet.
19 Ohio	S. Geo. No. 8.	527	do.	948	79	421	1,079	980	1,027	35 Gas, 948 feet.
20 Ohio	L. Vandermark, No. 3.	527	do.	981	42	451	1,046	996	1,023	35 Gas, 981 feet. Quit in white sand.
21 Ohio	L. Vandermark, No. 1.	532	do.	1,005	19	473	1,027	1,012	1,024	60 Gas, 1,005 feet.
3 Ohio	S. Geo. No. 3.	531	do.	988	25	458	1,042	1,011	1,014	100 Gas, 1,001 feet.
4 Ohio	S. Vandermark, No. 1.	526	do.	998	30	472	1,024	1,005	1,028	30 Gas, 990 feet. Quit in sand.
5 Ohio	L. Vandermark, No. 2.	521	do.	990	36	469	1,031	991	1,026	90 Gas, 990 feet. Quit in sand.
6 Ohio	J. Vandermark, No. 2.	512	do.	991	16	479	1,021	995	1,007	90 Gas, 993 feet.
7 Ohio	J. Vandermark, No. 1.	506	do.	994	30	488	1,012	997	1,024	45 Gas, 1,010 feet.
			do.	947	31	452	1,048	1,048	1,048	Salt water.
1 Ohio	J. Dennison, No. 1.	495	Buchanan.	1,047	113	552	948	1,300	1,300	Dry.
				1,264	28	769	731	974	992	No record.
2 Wheeler-James.	V. Dennison, No. 1.	495	Bridgeport	959	33	456	1,044	974	992	150 Gas, 975 feet.
1 Ohio	Gray, No. 11.	503	do.	990	37	454	1,016	995	1,027	65 Gas, 995 feet.
2 Ohio	Gray, No. 1.	506	do.	971	41	472	1,028	981	1,012	75 Gas, 972 feet.
3 Ohio	Gray, No. 2.	499	do.	965	37	450	1,050	985	1,002	150 Gas, 985 feet.
4 Ohio	Gray, No. 7.	515	do.	960	39	462	1,038	990	1,019	200 Gas, 985 feet.
5 Ohio	Gray, No. 5.	518	do.	964	58	445	1,055	991	1,022	60 Gas, 965 feet.
6 Ohio	Gray, No. 10.	519	do.	964	58	445	1,055	991	1,022	60 Gas, 965 feet.
7 Ohio	Gray, No. 9.	519	do.	952	60	433	1,067	989	1,002	10 Gas, 952 feet.
8 Ohio	Gray, No. 8.	514	do.	972	22	458	1,042	979	994	75 Gas, 975 feet.
9 Ohio	Gray, No. 6.	522	do.	955	86	433	1,067	1,020	1,030	50 Gas, 1,019 feet.
10 Ohio	Gray, No. 3.	526	do.	966	65	440	1,060	1,016	1,031	60 Gas, 992 feet.
11 Ohio	Gray, No. 13.	523	do.	984	27	465	1,035	992	1,014	Dry.
12 Ohio	Gray, No. 14.	522	do.	987	46	470	1,030	1,016	1,051	60 Gas, 992 feet.
13 Ohio	Gray, No. 12.	535	do.	1,005	62	459	1,041	1,028	1,035	Salt water, 1,035 feet. Well abandoned.
14 Ohio	Gray, No. 4.	514	do.	973	62	459	1,041	1,028	1,035	Well abandoned.
1 Ohio	G. Ryan, No. 14.	499	Buchanan.	975	20	496	1,014	1,014	1,014	Gas, 1,572 feet.
			Kirkwood.	1,305	40	816	684	1,305	1,305	Gas, 1,685 feet.
			Tracy.	1,572	28	1,063	417	1,573	1,573	Gas, 1,586 feet.
2 Ohio	McClosky.	474	McClosky.	1,680	25	1,191	399	1,702	1,810	1,440 Gas, 1,806 feet.
3 Ohio	Ryan, No. 8.	479	Bridgeport.	1,805	5	1,316	384	1,805	1,810	100 Gas, 902 feet.
	Ryan, No. 6.		do.	937	29	937	1,047	944	956	
				902	52	423	1,077	944	944	

## Lawrence County—Dennison Township—Concluded.

Section No.	Map No.	Name of oil company.	Name of well.	Sur- face ele- va- tion— feet.	Sand.							Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.	Oil depth—feet.	Total depth—feet.		
30—	24 (See		Dining, No. 4.....	{ 464								Kirkwood-1..... Kirkwood-2..... Kirkwood-3.....	1,565 1,603 1,620

## Lawrence County—Lawrence Township.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.					Initial product—barrels.	Remarks.		
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
1— N. W. S. W.	1	Donnel, Agent	E. Martin, No. 1	445 {	Kirkwood	1,597	11	1,152	348	Oil depth—feet.	2,000	Dry	Salt water, 1,582 feet.
	1	Gillespie	Stanfield, No. 2	439	McClosky	1,552	8	1,437	63	Oil depth—feet.	1,570		
	2	Ohio	R. Kirkwood, No. 2	440 {	Kirkwood	1,564	64	1,125	376	Oil depth—feet.	1,628		Salt water.
	3	Gillespie	Stanfield, No. 4	440	Bridgeport	1,000	100	960	940	Oil depth—feet.	1,010	Dry	Drilling

2 Ohio	T. Gould, No. 16	484	do	905	82	421	1,079	959	20 Gas, 925 feet.
3 Ohio	T. Gould, No. 14	416	do	945	55	429	1,071	980	15 Gas, 950 feet.
4 Ohio	T. Gould, No. 13	519	do	933	47	434	1,066	970	300 Gas, 900 feet.
5 Ohio	T. Gould, No. 9	517	do	980	35	472	1,028	1,000	100 Gas, 905 feet.
6 Ohio	T. Gould, No. 12	516	do	980	61	453	1,047	995	125 Gas, 905 feet.
7 Ohio	T. Gould, No. 19	519	Kirkwood	975	50	456	1,044	997	Salt water, 1,033 feet.
				1,585	26	1,066	434	1,587	200 Gas, 1,586 feet. Quit in sand.
8 Ohio	T. Gould, No. 6	519	Bridgeport	992	31	473	1,027	997	200
9 Ohio	T. Gould, No. 5	514	do	975	35	461	1,039	978	200
			do	975	125	461	1,039		Salt water, 1,030 feet.
10 Ohio	T. Gould, No. 18	514	Buchanan	1,300	120	786	714		Salt water, 1,310 feet.
			Kirkwood	1,579	86	1,065	435	1,584	225 Gas, 1,583 feet. Quit in sand.
11 Ohio	T. Gould, No. 11	513	Bridgeport	955	40	442	1,058	980	75 Gas, 905 feet.
12 Ohio	T. Gould, No. 2	507	do	983	38	456	1,044	974	200 Gas, 905 feet.
			do	965	135	451	1,039		200
13 Ohio	T. Gould, No. 17	504	Buchanan	1,300	110	796	704		Salt water, 1,030 feet.
14 Ohio	T. Gould, No. 4	500	Kirkwood	1,562	24	1,059	441	1,572	175 Gas, 1,570 feet.
15 Ohio	T. Gould, No. 10	508	do	959	58	453	1,047	979	200 Gas, 905 feet.
16 Ohio	T. Gould, No. 15	492	do	980	30	488	1,012		200
17 Ohio	T. Gould, No. 3	493	Kirkwood	1,533	29	1,011	439	1,561	200 Gas, 1,557 feet.
18 Ohio	W. Gould, No. 1	487	Bridgeport	960	40	468	1,032	980	250
			do	955	30	469	1,032	970	200
19 Ohio	W. Gould, No. 5	486	do	965	25	479	1,021		Gas, 1,558 feet. Quit in sand.
			Kirkwood	1,544	30	1,058	442	1,556	150
20 Ohio	W. Gould, No. 4	488	Bridgeport	942	37	454	1,046	952	200 Gas, 932 feet.
			Shallow	585	95	89	1,411		Gas, 900 feet. 2,000,000 cubic feet daily.
1 Central Refining Co.	Jenner, No. 1	496	Bridgeport	925	15	429	1,071		
			do	955	37	459	1,041		
2 Central Refining Co.	Jenner, No. 14	496	do	955	37	459	1,041		
3 Central Refining Co.	Jenner, No. 3	483	Kirkwood	1,569	26	1,073	427	1,582	150
			Bridgeport	931	59	448	1,052	941	Gas, 936 feet.
			do	940	59	444	1,056	950	
4 Central Refining Co.	Jenner, No. 16	496	Buchanan	1,330	35	834	666		
			do	1,577	32	1,051	419	1,577	
5 Central Refining Co.	Jenner, No. 4	498	Kirkwood	902	95	404	1,096	940	Gas, 905 feet.
6 Central Refining Co.	Jenner, No. 8	500	do	920	10	420	1,080	920	
7 Central Refining Co.	Jenner, No. 10	500	do	960	38	460	1,010		
8 Central Refining Co.	Jenner, No. 7	487	Bridgeport	1,583	45	1,093	407	1,605	Gas, 939 feet.
			do	935	25	442	1,052	948	
9 Central Refining Co.	Jenner, No. 9	487	do	972	22	485	1,015		
10 Central Refining Co.	Jenner, No. 15	481	Kirkwood	1,571	39	1,064	416	1,552	Gas, 932 feet.
11 Central Refining Co.	Jenner, No. 6	482	Bridgeport	958	48	454	1,046	938	40
12 Central Refining Co.	Jenner, No. 12	482	do	925	70	443	1,067		
13 Central Refining Co.	Jenner, No. 5	482	Kirkwood	1,551	46	1,069	431	1,551	Gas, 935 feet.
14 Central Refining Co.	Jenner, No. 11	484	Bridgeport	928	78	445	1,055	939	Gas, 935 feet.
15 Central Refining Co.	Jenner, No. 13	482	Kirkwood	1,567	26	1,083	417	1,567	Well abandoned.
			do	1,549	37	1,067	433	1,556	105

S. E.

**B. I. . .**

## Lawrence County—Dennison Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur- face ele- va- tion— feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
35— S. E.	16	Central Refining Co.	Jenner, No. 2	482	932	8	450	1,050				
					945	37	463	1,037				
	17	Central Refining Co.	A. Gould, No. 2	470	901	21	509	1,091				Salt water, 1,008 feet.
					920	42	450	1,050	930	962	200	Gas, 925 feet.
	18	Central Refining Co.	A. Gould, No. 10	463	940	32	477	1,023				
					1,535	22	1,072	428	1,547	1,557	175	Gas, 1,545 feet. Quit in sand.
	19	Central Refining Co.	A. Gould, No. 12	490	927	48	437	1,063	952	975	70	Gas, 950 feet.
	20	Central Refining Co.	A. Gould, No. 5	484	913	53	449	1,051	923	966	240	Gas, 913 feet.
	21	Central Refining Co.	A. Gould, No. 11	464	915	54	451	1,049	928		20	Gas, 915 feet.
	22	Central Refining Co.	L. Leighty, No. 8	465	928	39	463	1,037	951	967	50	Gas, 928 feet.
	23	Ohio	L. Leighty, No. 3	475	938	24	463	1,037	944	962	150	Gas, 938 feet.
	24	Ohio	L. Leighty, No. 15	475	937	28	462	1,038				
	25	Ohio	L. Leighty, No. 9	474	928	31	465	1,035	1,550	1,571	20	Gas, 1,545 feet.
	26	Ohio	L. Leighty, No. 4	490	947	55	454	1,046	940	983	75	Gas, 938 feet.
	27	Ohio	L. Leighty, No. 14	490	930	35	440	1,060	948	974	135	Gas, 947 feet.
	28	Ohio	L. Leighty, No. 6	473	917	63	444	1,056	1,562	1,582	150	Gas, 1,560 feet. Quit in sand.
					917	63	444	1,056	935	980	150	Gas, 917 feet.
	29	Ohio	L. Leighty, No. 16	473	1,210	190	737	783				Salt water, 1,300 feet.
					1,546	12	1,073	427	1,552	1,567	75	Gas, 1,554 feet.
	30	Ohio	A. Gould, No. 3	486	940	16	454	1,046	945	962	60	Gas, 942 feet.
					948	38	462	1,038				
	31	Ohio	A. Gould, No. 9	486	1,559	39	1,073	427	1,580	1,598	200	Gas, 1,575 feet. Quit in sand.
					940	25	432	1,068				
	32	Ohio	A. Gould, No. 4	506	940	30	1,079	421	1,597	1,617		Gas, 1,590 feet. Well abandoned.
					1,587	30	1,079	421				
	33	Ohio	A. Gould, No. 8	506	940	30	432	1,068				
					1,585	28	1,077	423	1,590	1,613	100	Gas, 1,587 feet.
34	Ohio	A. Gould, No. 1		506	900	43	455	1,045	970	1,008		Well abandoned.

S. E...	1	Ohio	Lamott, No. 1.	477	Kirkwood	1,816	19	1,139	351	1,616	1,639	70	.....
0—	2	Ohio	S. N. Cooper, No. 1	468	do	1,606	4	1,138	352	1,802	1,802	Dry	.....
N. E...	1	Ohio	Proper, No. 2	467	Kirkwood	1,586	22	1,134	356	1,608	1,853	Dry	No sands
	2	Ohio	Proper, No. 1	464	do	1,608	7	1,141	359	1,832	1,832	90	Gas 1,608 feet
	3	Ohio	J. Griggs, No. 2	467	do	1,800	8	1,441	359	1,792	1,792	Dry	Salt water, 1,640 feet
	4	Ohio	J. Griggs, No. 1	446	Kirkwood	1,455	45	1,095	494	1,636	1,636	.....	Abandoned
S. E...	1	Ohio	Stivers, No. 1	433	Bridgeport	1,950	517	983	.....	.....	.....	.....	.....
	2	Ohio	Stivers, No. 2	434	Buchanan	1,325	.....	892	608	.....	.....	75	Gas 1,790 feet
	3	Ohio	Umfleet, No. 1	434	McCluskey	1,564	1,131	360	.....	1,598	.....	.....	Salt water, 1,980 feet
10—	1	Shaw	Hardacre, No. 4	445	Kirkwood	1,700	6	1,535	144	2,007	2,007	60	Gas 1,563 feet
N. E...	2	Ohio	Hardacre, No. 1	475	Bridgeport	1,966	1,311	360	.....	1,814	.....	.....	Drilling
	3	Shaw	Hardacre, No. 3	424	Kirkwood-1	1,558	745	270	1,230	.....	.....	.....	Salt water, 965 feet
	4	Shaw	Hardacre, No. 2	421	Kirkwood-2	1,545	250	1,070	430	.....	.....	.....	Salt water, 1,575 feet
	5	Shaw	Hardacre, No. 2	421	Tracy	1,605	30	1,130	370	.....	.....	.....	.....
	6	Ohio	J. Seed, No. 5	422	Tracy	1,685	70	1,210	290	1,772	1,772	.....	Dry
	7	Ohio	J. Seed, No. 6	422	Kirkwood	1,525	53	1,101	399	.....	.....	.....	Salt water, 1,735 feet
N. W.	1	Ohio	J. Seed, No. 1	434	Kirkwood	1,530	46	1,109	391	.....	.....	.....	No record
S. W.	1	Ohio	T. Seed, No. 1	434	Bridgeport	1,050	50	928	872	.....	.....	60	.....
	2	Ohio	Griggs, No. 7	434	Tracy	1,415	20	993	607	.....	.....	.....	.....
	3	Ohio	Lawson, No. 2	436	Kirkwood	1,517	13	1,095	405	1,540	1,563	80	Gas 1,517 feet
	4	Ohio	Lawson, No. 1	437	Bridgeport	1,960	373	938	962	.....	.....	.....	.....
	5	Ohio	J. Seed, No. 3	436	Tracy	1,375	65	953	547	.....	.....	.....	.....
	6	Ohio	J. Seed, No. 4	435	Kirkwood	1,519	58	1,097	403	1,519	1,588	170	Gas 1,519 feet
	7	Ohio	J. Seed, No. 7	438	Buchanan	1,310	55	876	624	.....	.....	.....	No record
	8	Ohio	McCormick, No. 1	434	Tracy	1,605	28	1,171	329	1,578	1,783	30	Gas 1,578 feet
S. E...	1	Ohio	Griggs, No. 7	434	Kirkwood	1,577	28	1,143	357	1,577	1,815	22	Gas 1,578 feet
	2	Ohio	Lawson, No. 2	436	Kirkwood-1	1,490	28	1,054	446	.....	.....	.....	Salt water, 1,400 feet
	3	Ohio	Lawson, No. 1	437	Kirkwood-2	1,540	70	1,104	396	1,900	1,900	13	Gas 1,577 feet
	4	Ohio	J. Seed, No. 3	436	Kirkwood	1,534	41	1,098	402	1,534	.....	.....	No record
	5	Ohio	J. Seed, No. 4	435	Tracy	1,635	12	1,099	301	1,834	1,860	50	Gas 1,834 feet
	6	Ohio	J. Seed, No. 5	435	Kirkwood	1,515	15	1,080	430	1,515	.....	.....	Gas 1,515 feet
	7	Ohio	J. Seed, No. 6	433	Kirkwood-2	1,545	20	1,110	390	1,550	1,581	40	Gas 1,550 feet
	8	Ohio	J. Seed, No. 7	433	Tracy	1,521	43	1,088	412	1,521	1,521	70	Gas 1,521 feet
	9	Ohio	J. Seed, No. 8	438	Kirkwood	1,616	19	1,183	317	1,639	1,639	.....	Drilling
	10	Ohio	J. Seed, No. 9	437	Kirkwood	1,506	12	1,099	431	.....	.....	.....	Salt water, 1,850 feet
	11	Ohio	J. Seed, No. 10	437	McCluskey	1,711	2	1,274	226	2,007	2,007	Dry	Salt water, 1,910 feet
N. E...	1	Ohio	E. Kirkwood, No. 1	445	Bridgeport	1,005	125	560	940	.....	.....	.....	Salt water, 1,475 feet
	2	Ohio	M. Kirkwood, No. 4	439	Tracy	1,490	40	1,015	485	.....	.....	175	Gas 1,490 feet
	3	Ohio	M. Kirkwood, No. 4	439	Kirkwood	1,568	34	1,123	377	1,580	1,602	.....	No record



## Lawrence County—Dennison Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur- face ele- va- tion— feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
36— N. W.	4	Ohio.....	Ryan, No. 10.....	469	Bridgeport.....	940	60	471	1,029	1,576	90	Gas, 1,574 feet.
					Kirkwood.....	1,589	31	1,100	400	1,600		
					Bridgeport.....	976	15	503	697			
					Buchanan.....	1,575	100	893	404	1,575		Gas, 1,570 feet.
	5	Ohio.....	Ryan, No. 15.....	472	Kirkwood.....	1,588	23	1,096	296	1,885		Gas, 1,680 feet.
					Tracy.....	1,576	22	1,204	296	1,885		Gas, 1,680 feet.
					McClosky.....	1,784	5	1,316	194	1,788	1,650	Gas, 1,788 feet. Flowing well.
	6	Ohio.....	Ryan, No. 9.....	467	Bridgeport.....	944	31	477	1,023	960	15	(Account 2)
					J. Gould, No. 2.....	929	36	465	1,015	939	27	Gas, 1,563 feet (account 2)
					J. Gould, No. 1.....	1,560	32	1,097	403	1,565	100	Gas, 1,563 feet (account 2)
					Kirkwood.....	1,940	70	515	985			
	10	Ohio.....	Withers, No. 4.....	465	Bridgeport.....	1,589	24	1,104	298	1,572	90	Gas, 1,571 feet.
					Kirkwood.....	1,543	32	1,097	403	1,545	75	Gas, 1,544 feet.
					do.....							Drilling.
											35	Gas, 1,546 feet.
S. W.	1	Ohio.....	J. Gould (Acct. 1) No. 1.....	462	Kirkwood.....	1,539	29	1,077	423	1,549	1,569	Drilling.
					Buchanan, No. 11.....							
	3	Donnell, Agent.....	C. Buchanan, No. 3.....	441	Bridgeport.....	960		519	981			
					Kirkwood.....	1,470	26	1,099	403	1,560	1,569	
					do.....	1,533		1,084	406	1,545	1,562	
					do.....	1,533	27	1,084	406	1,536	240	
	7	Donnell, Agent.....	C. Buchanan, No. 8.....	439	do.....	1,535	26	1,086	404	1,540	1,563	Drilling.
					C. Buchanan, No. 10.....							
	9	Central Refining Co.....	Jenner, No. 7.....	440	Kirkwood.....	1,536	24	1,097	403	1,536	1,560	
					Bridgeport.....	1,236		486	1,014			Show Salt water, 1,015 feet.
					do.....	1,545	63	1,083	395	1,561	1,601	
					do.....	1,534	43	1,093	407	1,534	1,597	
	11	Central Refining Co.....	Jenner, No. 12.....	445	do.....	1,545	39	1,100	400	1,551	1,601	
					do.....							
					Bridgeport.....	926	20	465	1,035		105	
					Kirkwood.....	1,539	30	1,090	401	1,545	130	
	12	Central Refining Co.....	Jenner, No. 11.....	460	Tracy.....	1,538	34	1,174	322	1,047	1,080	

13	Ohio	J. Gould (Aoct. 1) No. 3	464	Kirkwood	1,568	19	1,104	396	1,568	Gas, 1,656 feet.
14	Ohio	J. Gould (Aoct. 1) No. 2	474	Tracy	1,655	35	1,31	309	1,702	Gas, 1,680 feet.
1	Central Refining Co.	Jenner, No. 1	439	Kirkwood	1,579	27	1,05	385	1,604	Show
2	Central Refining Co.	Jenner, No. 13	439	Kirkwood	1,544	53	1,05	395	1,598	
3	Central Refining Co.	Jenner, No. 5	442	Kirkwood	1,541	54	1,02	398	1,610	10
4	Central Refining Co.	Jenner, No. 8	442	do	935	68	487	1,013	939	Gas, 935 feet. Well abandoned.
5	Central Refining Co.	Jenner, No. 3	440	Kirkwood-1	1,535	5	483	1,007	940	
6	Central Refining Co.	Jenner, No. 14	438	Kirkwood-2	1,557	4	1,115	385		
7	Gee	Dining, No. 8	437	Kirkwood-3	1,600	37	1,158	342	1,540	Gas, 1,550 feet.
8	Gee	Dining, No. 10	440	Kirkwood-1	1,534	36	1,094	406		
9	Gee	Dining, No. 9	451	Kirkwood-2	1,576	14	1,136	364	1,597	
10	Gee	Dining, No. 6	446	Kirkwood-3	1,539	27	1,101	399	1,539	
11	Gee	Dining, No. 5	446	Kirkwood-1	1,543	24	1,106	394	1,615	75
12	Ohio	Irwin, No. 4	438	Kirkwood-2	1,597	18	1,180	340	1,615	Quit in sand
13	Ohio	Irwin, No. 5	439	do	998	17	558	942	1,015	Gas, 1,642 feet.
14	Ohio	Irwin, No. 2	441	do	1,568	20	1,114	398	1,626	Gas, 1,580 feet.
15	Ohio	Irwin, No. 1	443	Bridgeport	1,550	30	1,101	399	1,626	Gas, 1,560 feet.
16	Ohio	Irwin, No. 3	446	Kirkwood	1,547	28	1,107	383	1,551	32
17	Gee	Gee, No. 2	440	Bridgeport	943	34	1,097	403	945	204 Gas, 1,550 feet.
18	Gee	Gee, No. 5	441	Kirkwood-1	1,537	26	1,141	359		
19	Gee	Gee, No. 1	448	Kirkwood-2	1,581	15	1,190	310		
20	Gee	Gee, No. 4	453	McClosky	1,630	28	1,327	173		
21	Gee	Gee, No. 3	452	Bridgeport	935	18	464	1,006	935	8 Salt water under the oil.
22	Gee	Dining, No. 2	452	Kirkwood	1,539	58	1,096	401	1,547	35
23	Gee	Dining, No. 1	458	Tracy-1	1,657	17	1,214	286		
24	Gee	Dining, No. 3	453	Tracy-2	1,720	12	1,277	223		
25	Gee	Dining, No. 4	453	McClosky	1,789	17	1,348	154	1,799	
26	Gee	Dining, No. 5	453	Bridgeport	885	10	412	1,088	885	
27	Gee	Dining, No. 6	453	do	922	439	1,061	936	953	50
28	Gee	Dining, No. 7	453	do	940	498	1,012	960		
29	Gee	Dining, No. 8	453	Kirkwood	1,551	29	1,099	401	1,558	360
30	Gee	Dining, No. 9	453	Bridgeport	916	19	464	1,036	917	
31	Gee	Dining, No. 10	453	Kirkwood-1	1,560	36	1,108	392	1,563	
32	Gee	Dining, No. 11	453	Kirkwood-2	1,601	11	1,149	351	1,601	100
33	Gee	Dining, No. 12	453	Bridgeport	985	89	1,527	973	1,612	
34	Gee	Dining, No. 13	453	Kirkwood	1,556	89	1,098	402	1,556	
35	Gee	Dining, No. 14	453	Tracy	1,655	12	1,197	303	1,667	

**Lawrence County—Dennison Township—Concluded.**

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.						Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.	Oil depth—feet.	Total depth—feet.	
36—	24	Gee.....	Dining, No. 4.....	464 {	Kirkwood-1.....	1,565	32	1,101	399	1,566	.....	Salt water, 1,562 feet.....
S. E....					Kirkwood-2.....	1,803	12	1,139	361	1,606	.....	.....
					Kirkwood-3.....	1,620	8	1,156	344	1,621	1,629	100.....

**Lawrence County—Lawrence Township.**

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
1— S. W.	1	Donnel, Agent	E. Martin, No. 1	445 {	1,597	11	1,152	348	1,887	2,000	Dry	Salt water, 1,882 feet.	
	1	Gillespie	Stanfield, No. 2	439 {	1,882	8	1,437	63	1,570	1,628			
	2	Ohio	R. Kirkwood, No. 2	440 {	1,584	64	1,235	275	1,570	1,628			
	3	Gillespie	Stanfield, No. 4	440 {	1,000	100	660	940	1,610		Dry	Salt water.	
				440	1,568	35	1,125	376				Drilling.	

4	Gillespie	Stanfield, No. 1.	443	Bridgeport. Buchanan Kirkwood	1,020 1,300 1,565	20 54 45	578 588 1,123	922 643 377	1,681 1,610	Salt water.	
5	Gillespie	Stanfield, No. 3.	448	Bridgeport. Kirkwood	1,015 1,975 910	135 55 220	1,567 1,527 470	377 - 1,030	2,560	Dry	
6	Ohio	R. Kirkwood, No. 1.	440	Bridgeport. Kirkwood Tracy	1,568 1,776 1,887	36 34 13	1,128 1,336 1,447	372 164 53	2,002	Dry	
7	Ohio	A. Kirkwood, No. 2.	445	Kirkwood	1,568	42	1,123	377	1,582	Drilling.	
8	Ohio	A. Kirkwood, No. 1.	445	Bridgeport. Stray	1,010 1,430	105 60	570 990	980 610	1,651	55 Gas, 1,582 feet.	
9	Ohio	M. Kirkwood, No. 1.	440	Kirkwood Stray	1,563 1,000	57 140	1,123 550	377 950	1,628	Dry	
1	Ohio	Hennesse, No. 1.	450	Bridgeport. Stray Kirkwood	1,460 1,620	70 20	1,010 1,170	490 330	1,981	Salt water, 1,480 feet. 12 Gas, 1,625 feet.	
2	Ohio	Sumner, No. 2.	434	Bridgeport. Buchanan Kirkwood	1,000 1,240 1,600	120 18 6	566 594 1,166	934 594 334	1,340	25 Gas, 1,344 feet.	
3	Ohio	Sumner, No. 1.	438	Tracy Bridgeport. Buchanan	1,600 960 1,380	6 140 50	1,256 522 942	244 978 568	1,896		
4	Ohio	Sumner, No. 1.	438	Buchanan Kirkwood	960 1,577	140 26	522 1,139	978 361	1,896	150 Gas, 1,582 feet.	
5	Ohio	Tanquary, No. 1.	430	Bridgeport. Buchanan Kirkwood-1	950 1,375 1,575	180 30 20	520 945 1,145	980 555 355	1,598	12 Salt water.	
6	Snowden Bros.	Whittaker, No. 6.	446	Kirkwood-2	1,610	17	1,180	320	1,627	Drilling.	
7	Ohio	McCleve, No. 1.	492	Bridgeport. Stray	1,018 1,124 1,927	10 68	526 632 1,435	974 898 65	1,927	175 No record.	
8	Ohio	T. Whittaker, No. 1.	440	Kirkwood	1,560	32	1,141	359		Show Salt water, 2,164 feet. Abandoned.	
9	Ohio	T. Whittaker, No. 1.	462	Kirkwood	850	110	413	1,087		175 No record.	
1	Illinois	Development & Producing Co.	437	Bridgeport. Buchanan Kirkwood	1,380 1,600 1,870	20 5 30	557 1,163 433	1,087 337 67	1,880	1,994	Salt water, 950 feet. Salt water, 1,385 feet.
2	Illinois	Hardacre, No. 1.	437	McClosky Bridgeport. do	1,570 840 940	30 25 100	1,433 395 495	67 1,105 1,005	1,880	1,994	Dry
3	Illinois	Stoltz, No. 1.	445	do Stray do	940 1,100 1,455	40 20 20	1,105 655 1,010	1,005 945 490	1,880	1,994	Salt water, 955 feet and 1,005 feet. Salt water, 1,100 feet.
4	Illinois	Poor Farm, No. 2	448	Kirkwood	1,519	23	1,074	426	1,550	1,602	Salt water, 1,270 feet.
5	Illinois	Poor Farm, No. 1.	462	do Bridgeport. Kirkwood	1,508 909 1,440	23 48 45	1,080 440 988	1,080 440 512	1,531	1,531	125

## Lawrence County—Lawrence Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
13— S. W.	3	Donnel, Agent.	Irwin, No. 2.	428	Kirkwood.	1,563	1,135	1,252	365	1,680	Dry	Salt water, 1,605 feet.
					Tracey.	1,680	1,252	1,337	248	1,765	Black oil.	Black oil.
	4	Donnel, Agent.	Irwin, No. 6.	431	McCleskey.	1,765	1,337	1,519	163	1,765	Gas, 1,765 feet.	Green oil.
	5	Donnel, Agent.	Irwin, No. 1.	429	Bridgeport.	1,950	75	90	661	1,984	155	Gas, 1,558 feet.
					Buchanan.	1,270	90	839	376	1,558	65	Gas, 1,558 feet.
14— N. E.					Kirkwood.	1,555	35	1,124	384	1,555		
					do.	1,545	25	1,116		1,570		
	1	Bridgeport.	R. Kirkwood, No. 2.	428	Bridgeport.	948	10	519	981	1,534		
					Kirkwood.	1,532	28	1,103	397	1,534		
	2	Bridgeport.	R. Kirkwood, No. 10.	419	Bridgeport.	1,940	60	821	979			
					do.	1,005	65	596	914			
					Buchanan.	1,295	65	866	634			
	3	Bridgeport.	R. Kirkwood, No. 1.	419	Kirkwood.	1,630	27	1,111	399	1,534		
					Bridgeport.	1,630	12	1,116	989	1,560		
	4	Bridgeport.	McPherson, No. 1.	416	Kirkwood.	1,935	10	609	991	1,543		
	5	Bridgeport.	R. Kirkwood, No. 4.	428	Bridgeport.	1,540	20	1,124	376	1,535		
					do.	1,773	27	838	388	1,542		
15— S. E.					Bridgeport.	963	20	425	1,623			
					do.	800	20	445	1,075			
					do.	860	20	426	1,075			
					do.	860	20	426	1,075			
	6	Bridgeport.	R. Kirkwood, No. 7.	435	Stray.	1,170	10	725	765			Salt water.
					Buchanan.	1,255	95	830	680			
					Kirkwood-1.	1,540	40	1,106	865	1,551		
					Kirkwood-2.	1,585	5	1,160	350			
					Kirkwood-3.	1,596	10	1,160	340			
	7	Bridgeport.	R. Kirkwood, No. 5.	435	McCleskey.	1,767	8	1,332	168	1,775		Salt water.
16— S. E.					Bridgeport.	1,940	35	605	995	940		Salt water, 975 feet.
					Buchanan.	1,280	80	845	645			Salt water, 1,240 feet.
					Kirkwood.	1,541	20	1,106	394	1,553		Abandoned.

[illegible]

## Lawrence County—Lawrence Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Initial product—barrels.	Remarks.		
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
14— N. W.	5 Ohio.....		W. Gillespie, No. 3.....	477	1,240	150	Buchanan.....	737	1,580	1,602	30	Gas 1,560 feet.
	6 Ohio.....		W. Gillespie, No. 7.....	457	1,550	50	Kirkwood.....	427	1,590	1,592	25	Gas 1,560 feet.
	7 Ohio.....		W. Gillespie, No. 2.....	429	1,532	50	do.....	415	1,560	1,572	100	Gas 1,530 feet.
	8 Ohio.....		W. Gillespie, No. 8.....	429	1,515	57	do.....	414	1,550	1,572	25	Gas 1,530 feet.
	9 Ohio.....		W. Gillespie, No. 4.....	432	1,525	37	do.....	404	1,530	1,565	30	Gas 1,550 feet.
	10 Ohio.....		W. Gillespie, No. 5.....	430	1,528	44	do.....	404	1,550	1,781	30	Gas 1,550 feet.
	11 Ohio.....		W. Gillespie, No. 6.....	430	1,240	165	Buchanan.....	690	1,523	1,548	100	Gas 1,523 feet.
	1 Ohio.....		W. Gillespie, No. 6.....	430	1,510	38	Kirkwood.....	420	1,517	1,802	75	Salt water, 1,800 feet.
	2 Ohio.....		S. Gray, No. 2.....	425	1,512	45	McClosky.....	162	1,302	1,558	40	Gas 1,515 feet.
	3 Ohio.....		S. Gray, No. 4.....	424	1,768	5	Kirkwood.....	414	1,532	1,570	40	Gas 1,545 feet.
S. E.	3 Ohio.....		S. Gray, No. 8.....	433	1,500	70	do.....	424	1,540	1,570	40	Gas 1,545 feet.
	4 Ohio.....		S. Gray, No. 3.....	432	1,774	1	McClosky.....	159	1,774	1,775	150	Gas 1,774 feet.
	5 Ohio.....		S. Gray, No. 14.....	434	1,040	85	Kirkwood.....	884	1,535	1,581	30	Gas 1,545 feet.
	6 Ohio.....		S. Gray, No. 12.....	434	1,250	105	Buchanan.....	684	1,535	1,779	30	Salt water.
	7 Ohio.....		S. Gray, No. 11.....	424	1,530	20	Kirkwood.....	404	1,565	1,773	165	Gas 1,769 feet.
	8 Ohio.....		S. Gray, No. 5.....	423	1,775	185	Bridgport.....	1,009	1,770	1,538	50	Gas 1,769 feet.
	9 Ohio.....		S. Gray, No. 6.....	434	1,230	135	McClosky.....	704	1,530	1,578	45	Salt water, 1,500 feet.
	10 Ohio.....		Christerson, No. 2.....	431	1,300	90	Buchanan.....	631	1,581	1,779	30	Salt water.
					1,513	38	Kirkwood.....	414	1,530	1,578	45	Salt water, 1,500 feet.
					1,036	1,205	1,700	50				

S. E.	5 Ohio.....	Christerson, No. 8.....	437	Bridgeport. Buchanan Kirkwood. Tracy	940 1,314 1,500 1,535 1,733	60 56 56 15 183	503 877 1,063 1,198 1,316	997 437 302 184 997	1,550 1,553 1,753 1,754	..... ..... Show 240	..... ..... Salt water, 1,550 feet. Sand and lime.	
	6 Ohio.....	Christerson, No. 10.....	437	Bridgeport. Buchanan Kirkwood. Tracy	940 1,280 1,600 1,732 1,732	183 60 50 8 40	503 543 1,063 1,193 1,315	997 657 437 317 185	1,510 1,528 1,754 1,760	..... ..... 60 Show Show	..... ..... ..... ..... .....	
	7 Linden.....	R. Kirkwood, No. 2.....	438	Tracy Kirkwood. McClusky	1,617 1,766 1,829	18 7 48	1,097 1,318 1,491	403 321 409	1,766 1,768 1,763	..... Show Show	..... ..... .....	
	8 Linden.....	R. Kirkwood, No. 3.....	438	Tracy Kirkwood. McClusky	1,617 1,766 1,829	48 6 6	1,091 1,179 1,317	409 321 415	1,763 1,755 1,763	..... Show Show	..... ..... .....	
	9 Linden.....	R. Kirkwood, No. 4.....	438	Tracy Kirkwood. McClusky	1,617 1,766 1,829	34 6 7	1,085 1,184 1,323	415 316 177	1,760 1,760	..... Light 140	..... ..... Oil from all sands No record	
N. W.	10 Linden.....	R. Kirkwood, No. 5.....	439	Kirkwood. do.	1,822 1,558	8 22	1,092 1,128	408 372	1,566 1,560	..... 40	..... No record	
	1 Bridgeport.....	R. Kirkwood, No. 1.....	430	Kirkwood. Stray	1,536 1,120	31 12	1,094 523	406 977	1,534 1,534	..... Dry	..... No record	
	2 Linden.....	R. Kirkwood, No. 1.....	431	Kirkwood. Bridgeport. do.	1,535 745 940	28 30 50	1,094 316 511	406 184 899	1,534 1,534 1,534	..... ..... .....	..... ..... Salt water.	
	3 Bridgeport.....	McPherson, No. 2.....	432	do. Buchanan Kirkwood. Tracy	1,030 1,250 1,518	30 52 49	601 851 1,089	899 649 411	..... ..... 1,520	..... ..... .....	..... ..... Salt water.	
	4 Bridgeport.....	McPherson, No. 1.....	431	Tracy McClusky	1,645 1,762	16 6	1,216 1,333	284 167	1,768	.....	.....	
S. W.	1 Bridgeport.....	Crackie, No. 1.....	445	Bridgeport. Stray	1,003 1,196	82 25	558 750	942 750	1,926	..... Dry	..... Lower sands are not present.	
	1 Bridgeport.....	McPherson, No. 6.....	430	Bridgeport. do.	935 960	15 105	505 530	995 970	..... .....	..... Show	..... Hole full of water, (960 feet).	
	2 Bridgeport.....	Chas. Kirkwood, No. 2.....	430	Stray Buchanan Kirkwood-1 Kirkwood-2 Bridgeport. do.	1,192 1,305 1,558 1,572 906 980	25 25 8 18 15 110	762 875 1,128 1,142 465 540	728 625 372 358 1,035 990	..... ..... 1,560 1,572 1,614 .....	..... ..... Show 90	..... ..... Salt water, 910 feet. Salt water, at 1,000 and 1,030 feet. Salt water, 1,300 feet.	
	3 Bridgeport.....	Chas. Kirkwood, No. 1.....	440	Buchanan-1 Buchanan-2 Kirkwood	1,300 1,322 1,553	16 8 25	860 852 1,113	640 618 387	..... ..... 1,554	..... ..... 1,554	..... ..... 137	..... ..... .....
	4 Bridgeport.....	Chas. Kirkwood, No. 1.....	440	Buchanan-1 Buchanan-2 Kirkwood	1,300 1,322 1,553	16 8 25	860 852 1,113	640 618 387	..... ..... 1,554	..... ..... 1,554	..... ..... 137	..... ..... .....





11 Big Four	E. Seed, No. 3.	455	do.	1,330	27	845	555	1,357		
12 Big Four	E. Seed, No. 8.	470	do.	1,303	27	833	667			
13 Big Four	E. Seed, No. 16.	446	Buchanan	1,318	94	872	438	1,318		
14 Big Four	E. Seed, No. 2.	446	Tracy	1,608	28	1,162	338			Gas, 1,806 feet.
15 Big Four	E. Seed, No. 9.	448	Buchanan	1,330	21	894	616	1,351		Abandoned.
16 Big Four	E. Seed, No. 6.	472	do.	1,302	28	854	646			
17 Ohio	G. Gillespie, No. 2.	440	do.	1,305	30	833	667			
18 Ohio	G. Gillespie, No. 3.	438	do.	1,288		853	647	1,300		
19 Ohio	G. Gillespie, No. 1.	441	do.	1,300		860	650	1,303		
20 Ohio	G. Gillespie, No. 6.	432	do.	1,331		860	641	1,318		
21 Ohio	G. Gillespie, No. 4.	441	Kirkwood	1,391	17	1,149	351	1,593		40 Gas, 1,532 feet.
22 Ohio	W. Gillespie, Lot No. 1.	436	Buchanan	1,290	21	849	651	1,300		200
23 Ohio	G. Gillespie, No. 5.	433	do.	1,270	25	834	666	1,280		180
	G. Gillespie, No. 7.	428	do.	1,296	47	833	667	1,313		400
1 Ohio	G. Gillespie, No. 8.	448	Kirkwood	1,574	10	1,146	354			
2 Ohio	G. Gillespie, No. 4.	448	Tracy	1,650	20	1,222	278	1,660		30
3 Ohio	A. Gillespie, No. 2.	461	Kirkwood	1,574	23	1,126	374	1,580		Gas, 1,574 feet.
4 Ohio	A. Gillespie, No. 1.	451	do.	1,532	25	1,112	388	1,573		Gas, 1,572 feet.
5 Ohio	A. Gillespie, No. 3.	451	do.	1,528	56	1,061	419	1,540		30 Account, No. 1.
6 Ohio	A. Gillespie, No. 2.	431	do.	1,554	26	1,118	382	1,561		125 Acct. 1, Gas, 1,492 feet.
7 Ohio	C. Seed, No. 3.	427	do.	1,538	23	1,107	393	1,538		15 Acct. 1, Gas, 1,561 feet.
8 Ohio	C. Seed, No. 4.	430	Buchanan	1,294	25	857	643	1,550		35 Acct. 3, Gas, 1,538 feet.
9 Ohio	C. Gillespie, No. 3.	432	Kirkwood	1,536	20	1,134	366	1,564		25 Gas, 1,545 feet.
10 Ohio	C. Gillespie, No. 4.	440	Kirkwood-1	1,565	21	1,135	365	1,537		
11 Ohio	C. Gillespie, No. 1.	422	Kirkwood-2	1,528	49	1,096	404	1,530		100 Gas, 1,537 feet.
12 Ohio	C. Gillespie, No. 2.	427	Kirkwood-1	1,530	20	1,090	410	1,530		30 Gas, 1,528 feet.
13 Ohio	C. Seed, No. 5.	428	Kirkwood-2	1,570	22	1,130	370			30 Gas, 1,530 feet.
14 Ohio	C. Seed, No. 2.	428	Buchanan	1,273	65	851	649			
15 Ohio	C. Seed, No. 1.	431	do.	1,506	22	1,083	417	1,505		35
16 Ohio	G. Gillespie, No. 9.	430	do.	1,612	30	1,085	415	1,614		25 Gas, 1,512 feet.
17 Ohio	W. Gillespie, No. 5.	437	Buchanan	1,278	24	850	650			No record.
18 Ohio	W. Gillespie, No. 6.	440	Kirkwood	1,563	22	1,132	368	1,565		350
19 Ohio	W. Gillespie, No. 7.	443	Tracy	1,636	17	1,226	274	1,656		12 Gas, 1,656 feet.
20 Ohio	W. Gillespie, No. 8.	448	Buchanan	1,316	10	879	621	1,518		100
21 Ohio	W. Gillespie, No. 9.	440	Kirkwood-1	1,494	16	1,054	446	1,500		Gas, 1,490 feet.
22 Ohio	W. Gillespie, No. 10.	448	Kirkwood-2	1,500	39	1,120	380	1,599		60 Salt water, 1,599 feet.
23 Ohio	W. Gillespie, No. 11.	448	Buchanan	1,312	864	636	1,312	1,331		Salt water, 1,335 feet.
24 Ohio	W. Gillespie, No. 12.	456	do.	1,356	44	900	600	1,420		Well abandoned.
25 Ohio	W. Gillespie, No. 13.	464	do.	1,351	23	887	613			Salt water, 1,362 feet.
26 Ohio	W. Gillespie, No. 14.	472	do.	1,335	26	863	637			Well abandoned.
27 Ohio	W. Gillespie, No. 15.	472	do.	1,300	19	836	664	1,319		
28 Ohio	W. Gillespie, No. 16.	483	do.	1,303	10	850	650	1,313		300
29 Ohio	W. Gillespie, No. 17.	445	do.	1,290	16	845	655	1,295		300
30 Ohio	W. Gillespie, No. 18.	443	do.	1,282	661	1,287	1,297	1,297		250
31 Ohio	W. Gillespie, No. 19.	448	do.	1,280	17	832	668	1,298		200

S. E.

N. E.



8	Bridgeport.	R. Kirkwood, No. 9.	431	Bridgeport-2 Bridgeport-3 Buchanan Kirkwood Tracey McClosky Kirkwood do Stray Kirkwood	770 950 1,015 1,280 1,530 1,650 1,709 1,527 1,516 1,340 1,558	20 15 30 70 55 19 9 35 32	339, 1,161 519, 980 584, 916 640, 651 699, 401 719, 281 338, 163 1,096, 404 1,088, 402 1,082, 588 1,130, 870	Salt water, hole full. Salt water, hole full.	
9	Bridgeport.	R. Kirkwood, No. 3.	431	McClosky	1,709	9	1,778		
10	Bridgeport.	McPherson, No. 2.	418	do	1,516	35	1,527		
11	Busch-Everett.	Christerson, No. 6.	428	Stray	1,340	32	1,082		
12	Busch-Everett.	Christerson, No. 1 (7).	417	Kirkwood	1,558		1,130		No record
13	Busch-Everett.	Christerson, No. 2.	426	Stray	1,325		908		No record
14	Busch-Everett.	Christerson, No. 1 (7).	427	Kirkwood	1,560		1,143		No record
15	Busch-Everett.	Christerson, No. 3.	427	Stray	1,350		923		
16	Busch-Everett.	Christerson, No. 1.	427	Kirkwood	1,570		1,143		
17	Ohlo.	Christerson, No. 7.	427	Stray	1,350		923		
18	Ohlo.	Christerson, No. 1.	427	Kirkwood	1,570		1,143		
19	Guarantee.	Christerson, No. 1.	430	Stray	1,350		923		
1	Ohlo.	Christerson, No. 9.	435	Kirkwood	1,565		1,138		
2	Ohlo.	Christerson, No. 6.	435	Bridgeport.	940	60	513		
3	Shurian.	Rogers, No. 1.	430	Buchanan	1,300	40	873		
4	Shurian.	Rogers, No. 5.	435	Kirkwood	1,525	50	1,088		
5	Shurian.	Rogers, No. 6.	435	Tracey	1,640	9	1,213		
6	Shurian.	Rogers, No. 4.	434	McClosky	1,738	22	1,311		
7	Shurian.	Rogers, No. 3.	427	Kirkwood	1,534		1,107		
1	Shurian.	Rogers, No. 2.	420	Bridgeport.	1,094	101	684		
2	Ohlo.	A. Gillespie, No. 1.	429	Kirkwood	1,534	28	1,104		
3	Ohlo.	A. Gillespie, No. 3.	442	do	1,528		1,072		
4	Ohlo.	W. Gillespie, No. 1.	463	do	1,508		1,045		

## Lawrence County—Lawrence Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
14— N. W.	5 Ohio.....		W. Gillespie, No. 3.....	477	1,210	130	763	737	1,580	1,602	30	Gas, 1,560 feet.
	6 Ohio.....		W. Gillespie, No. 7.....	457	1,550	50	1,073	425	1,560	1,582	25	Gas, 1,560 feet.
	7 Ohio.....		W. Gillespie, No. 2.....	429	1,532	50	1,075	414	1,550	1,572	100	Gas, 1,530 feet.
	8 Ohio.....		W. Gillespie, No. 8.....	429	1,515	57	1,086	404	1,530	1,565	25	Gas, 1,530 feet.
	9 Ohio.....		W. Gillespie, No. 4.....	432	1,525	37	1,096	404	1,530	1,581	30	Gas, 1,550 feet.
	10 Ohio.....		W. Gillespie, No. 5.....	430	1,528	44	1,096	690	1,530	1,548	100	Gas, 1,523 feet.
	11 Ohio.....		W. Gillespie, No. 6.....	430	1,510	38	1,080	420	1,517	1,532	78	Gas, 1,515 feet.
	1 Ohio.....		S. Gray, No. 2.....	425	1,512	45	1,082	418	1,532	1,558	40	Salt water, 1,800 feet.
	2 Ohio.....		S. Gray, No. 4.....	424	1,768	5	1,338	162	1,540	1,570	40	Gas, 1,545 feet.
	3 Ohio.....		S. Gray, No. 8.....	433	1,511	49	1,086	414	1,774	1,775	160	Gas, 1,774 feet.
S. E.	4 Ohio.....		S. Gray, No. 3.....	432	1,500	70	1,076	421	1,555	1,581	30	Gas, 1,545 feet.
	5 Ohio.....		S. Gray, No. 14.....	434	1,774	36	1,341	387	1,881	1,881	Dry	
	6 Ohio.....		S. Gray, No. 12.....	434	1,530	105	816	684	1,535	1,555	30	Gas, 1,545 feet.
	7 Ohio.....		S. Gray, No. 11.....	424	1,775	20	1,096	404	1,775	1,779	30	Salt water.
	8 Ohio.....		S. Gray, No. 5.....	423	925	185	491	1,009	1,565	1,570	165	Gas, 1,769 feet.
	9 Ohio.....		S. Gray, No. 6.....	434	1,230	40	1,121	379	1,770	1,773	50	Gas, 1,770 feet.
	10 Ohio.....		Christerson, No. 2.....	431	1,772	7	1,338	162	1,538	1,578	45	Salt water, 1,300 feet.
					925	185	501	999	1,530	1,578	45	
					1,230	185	806	994	1,530	1,578	45	
					1,555	25	1,131	369	1,530	1,578	45	



## Lawrence County—Lawrence Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur- face ele- va- tion— feet.	Sand.					Initial product—barrels.	Remarks.			
					Name.	Depth to top—feet.	Thickness penetrated— —feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			Oil depth—feet.	Total depth—feet.	
15— N. E.	14	Ohio.....	Carlson, No. 8.....	433	Buchanan.....	1,304	10	871	636	1,304	1,314	87	Well abandoned.	
	15	Ohio.....	Carlson, No. 6.....	432	do.....	1,300	34	898	632	1,311	1,334	107		
	16	Ohio.....	Carlson, No. 9.....	432	Bridgeport.....	1,300	110	898	632	1,311	1,334			
	17	Ohio.....	Carlson, No. 7.....	432	Buchanan.....	1,334	28	1,102	614	1,338	1,665	5		Gas, 1,538 feet.
	1	Ohio.....	C. Seed, No. 6.....	434	do.....	1,318	6	895	635	1,324	1,324	30		
	2	Ohio.....	C. Seed, No. 5.....	436	do.....	1,280	10	842	658	1,302	1,306	180		
	3	Ohio.....	C. Seed, No. 4.....	432	do.....	1,539	16	1,101	399	1,539	1,568	20		
	4	Ohio.....	C. Seed, No. 3.....	433	Kirkwood-1.....	1,568	6	1,128	372	1,539	1,568			
	5	Ohio.....	C. Seed, No. 2.....	437	Kirkwood-2.....	1,268	15	836	644	1,270	1,283	250		
	6	Ohio.....	C. Seed, No. 1.....	437	Buchanan.....	1,275	13	842	658	1,277	1,288	200		
N. W.	7	Ohio.....	Griggs, No. 3.....	437	do.....	1,262	15	825	675	1,277	1,277	200		
	8	Ohio.....	Griggs, No. 2.....	437	do.....	1,280	25	847	653	1,282	1,305	200		
	9	Ohio.....	Griggs, No. 1.....	447	do.....	1,313	11	876	624	1,314	1,324	200		
	10	Ohio.....	Griggs, No. 5.....	434	do.....	1,277		850	670	1,277	1,288			
	11	Ohio.....	Griggs, No. 4.....	438	do.....	1,281		825	675	1,281	1,307			
	12	Ohio.....	Griggs, No. 6.....	434	do.....	1,267	17	833	647	1,290	1,304	200		
	1	Ohio.....	L. Seed, No. 2.....	464	do.....	1,268	14	850	650	1,268	1,302	125		Gas, 1,540 feet.
	2	Ohio.....	L. Seed, No. 4.....	458	Kirkwood.....	1,528	51	894	614	1,546	1,579	100		
	3	Ohio.....	L. Seed, No. 1.....	458	Buchanan.....	1,283	37	819	681	1,288	1,320	720		
	4	Ohio.....	L. Seed, No. 11.....	444	do.....	1,284	27	826	674	1,290	1,311	150		
S. W.	5	Ohio.....	L. Seed, No. 13.....	470	do.....	1,270	44	781	719	1,251	1,265	150		
	6	Ohio.....	L. Seed, No. 6.....	475	do.....	1,251	31	815	685	1,245	1,321	200		
	7	Ohio.....	L. Seed, No. 12.....	470	do.....	1,261	78	701	709	1,245	1,330	475		
	8	Ohio.....	L. Seed, No. 3.....	453	do.....	1,252		820	671	1,284	1,316	128		
	9	Ohio.....	L. Seed, No. 7.....	490	do.....	1,311	28	831	670	1,315	1,339	200		
	10	Ohio.....	L. Seed, No. 9.....	463	do.....	1,300	27	837	663	1,305	1,325	175		
	11	Ohio.....	L. Seed, No. 1.....	449	do.....	1,307	27	838	642	1,310	1,334	128		

11 Big Four.	E. Seed, No. 3.	485	do.	1,330	27	845	655	1,357				
12 Big Four.	E. Seed, No. 8.	470	do.	1,303	27	833	667					
			Buchanan	1,318	64	872	628	1,318				
			Kirkwood	1,508	10	1,062	438					
13 Big Four.	E. Seed, No. 16.	446	Tracy	1,908	28	1,152	338					
			McCloskey	1,908	28	1,300	140	1,806				
			Buchanan	1,330	21	884	616					
14 Big Four.	E. Seed, No. 2.	446	do.	1,302	28	854	646					
15 Big Four.	E. Seed, No. 9.	448	do.	1,305	30	853	647					
16 Big Four.	E. Seed, No. 6.	472	do.	1,293		833	667					
17 Ohio.	G. Gillespie, No. 2.	440	do.	1,288		860	650	1,300				
18 Ohio.	G. Gillespie, No. 1.	438	do.	1,288		860	650	1,300				
19 Ohio.	G. Gillespie, No. 2.	441	do.	1,288		860	650	1,300				
20 Ohio.	G. Gillespie, No. 1.	441	do.	1,288		860	650	1,300				
21 Ohio.	G. Gillespie, No. 6.	432	Kirkwood	1,581	17	1,140	351	1,583				
22 Ohio.	G. Gillespie, No. 4.	441	Buchanan	1,290	21	849	651	1,300				
23 Ohio.	W. Gillespie, Lot No. 1.	436	do.	1,270	25	834	666	1,290				
24 Ohio.	G. Gillespie, No. 5.	433	do.	1,296	47	833	667	1,273				
25 Ohio.	G. Gillespie, No. 7.	428	do.	1,574	10	1,146	354					
26 Ohio.	G. Gillespie, No. 8.	448	Tracy	1,570	20	1,222	278	1,560				
27 Ohio.	A. Gillespie, No. 1.	441	Kirkwood	1,574	23	1,126	374	1,590				
28 Ohio.	A. Gillespie, No. 2.	441	do.	1,573	23	1,126	374	1,590				
29 Ohio.	A. Gillespie, No. 3.	451	do.	1,532	54	1,081	388	1,573				
30 Ohio.	A. Gillespie, No. 4.	436	do.	1,492	84	1,041	459	1,540				
31 Ohio.	A. Gillespie, No. 5.	436	do.	1,554	23	1,107	382	1,541				
32 Ohio.	A. Gillespie, No. 6.	431	do.	1,538	23	1,107	382	1,538				
33 Ohio.	A. Gillespie, No. 7.	427	Buchanan	1,284	28	857	643					
34 Ohio.	C. Seed, No. 3.	437	Kirkwood	1,561	26	1,134	394	1,564				
35 Ohio.	C. Seed, No. 4.	430	Kirkwood-1	1,536	20	1,104	394	1,537				
36 Ohio.	C. Gillespie, No. 3.	432	Kirkwood-2	1,545	21	1,135	385					
37 Ohio.	C. Gillespie, No. 4.	440	Kirkwood-1	1,530	40	1,098	404	1,530				
38 Ohio.	C. Gillespie, No. 5.	422	Kirkwood-2	1,570	20	1,090	410	1,530				
39 Ohio.	C. Gillespie, No. 6.	422	Buchanan	1,570	22	1,130	370					
40 Ohio.	C. Gillespie, No. 7.	427	do.	1,568	23	1,083	417	1,565				
41 Ohio.	C. Gillespie, No. 8.	428	do.	1,512	30	1,086	415	1,514				
42 Ohio.	C. Seed, No. 1.	428	Buchanan	1,278	24	850	650					
43 Ohio.	C. Seed, No. 2.	428	Kirkwood	1,493	22	1,132	388	1,493				
44 Ohio.	C. Seed, No. 3.	431	Tracy	1,493	17	1,126	374	1,493				
45 Ohio.	W. Gillespie, No. 9.	437	Buchanan	1,310	16	1,054	446	1,310				
46 Ohio.	W. Gillespie, No. 10.	440	Kirkwood-1	1,544	39	1,201	380	1,544				
47 Ohio.	W. Gillespie, No. 11.	448	Buchanan	1,312	44	900	600	1,312				
48 Ohio.	W. Gillespie, No. 12.	456	do.	1,356	44	900	600	1,356				
49 Ohio.	R. Gillespie, No. 1.	464	do.	1,351	23	887	613					
50 Ohio.	R. Gillespie, No. 2.	472	do.	1,335	26	883	627					
51 Ohio.	R. Gillespie, No. 3.	464	do.	1,300	19	830	604					
52 Ohio.	R. Gillespie, No. 4.	453	do.	1,303	10	840	605					
53 Ohio.	R. Gillespie, No. 5.	445	do.	1,290	16	845	605					
54 Ohio.	R. Gillespie, No. 6.	443	do.	1,283	17	832	608					
55 Ohio.	R. Gillespie, No. 7.	448	do.	1,280								
56 Ohio.	R. Gillespie, No. 8.	448	do.	1,280								

S. E.

N. E.



## Lawrence County—Lawrence Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur- face ele- va- tion— feet.	Sand.				Initial product—barrels.	Remarks.		
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.			Altitude above datum plane—feet.	Oil depth—feet.
16— N. E.	12 Ohio.	R. Gillespie, No. 14.	441	1,296	14	855	645	1,298	250	1,310	250	
	13 Ohio.	R. Gillespie, No. 13.	439	1,300	15	861	639	1,304	200	1,315	200	
	14 Ohio.	R. Gillespie, No. 9.	443	1,306	20	863	637	1,310	150	1,326	150	Salt water, 1,360 feet.
	N. W.	W. Gillespie, No. 3.	460	1,357	15	897	603	1,725				Well abandoned.
		Buchanan.	1,520	130	1,060	440						
	2 Ohio.	Buchanan.	1,351	8	831	619						Salt water, 1,585 feet.
		Kirkwood.	1,508	21	1,038	462	1,512	1,607				Well abandoned.
	3 Ohio.	Buchanan.	480	1,348	18	868	632	1,352	200	1,366	200	
	4 Ohio.	Lewis, No. 7.	452	1,512	29	1,060	440	1,524	150	1,541	150	Gas, 1,510 feet.
	5 Ohio.	C. Gillespie Lot, No. 1.	445	1,506	22	1,061	439	1,507	175	1,528	175	
8. W.	6 Ohio.	Lewis, No. 6.	465	1,312	11	847	633	1,315	250	1,325	250	
	7 Ohio.	Lewis, No. 10.	480	1,335	11	855	645	1,337	200	1,346	200	
	8 Ohio.	Lewis, No. 3.	480	1,345	20	856	644	1,350	200	1,362	200	
	9 Ohio.	Lewis, No. 4.	481	1,307	20	826	674	1,308	300	1,327	300	
	10 Ohio.	Lewis, No. 9.	476	1,305	41	829	671	1,315	250	1,346	250	
	11 Ohio.	Lewis, No. 2.	486	1,320	30	834	666	1,322	100	1,350	100	
	12 Ohio.	Lewis, No. 8.	489	1,325	95	836	664	1,349				Salt water, 1,665 feet.
	13 Ohio.	Lewis, No. 1.	489	1,330	43	841	649					Well abandoned.
		Buchanan.	1,340	19	851	639	1,359					
	14 Ohio.	R. Gillespie, No. 3.	485	1,358	627	851	649	1,359	75	1,368	75	
15 Ohio.	R. Gillespie, No. 8.	475	1,340	11	865	635	1,345	250	1,362	250		
16 Ohio.	R. Gillespie, No. 11.	467	1,350	11	863	617	1,353	60	1,361	60		
17 Ohio.	R. Gillespie, No. 10.	483	1,340	22	857	643	1,352	105	1,362	105		
18 Ohio.	R. Gillespie, No. 4.	487	1,331	24	838	666	1,355	150	1,367	150		
1 Ohio.	C. Seed, No. 1.	482	1,320	47	838	662	1,357	50	1,387	50	Salt water, 1,367 feet.	
2 Ohio.	C. Seed, No. 10.	493	1,330	50	837	663	1,340	180	1,390	180		
3 Ohio.	C. Seed, No. 2.	483	1,348	14	865	635	1,350	126	1,362	126		
4 Ohio.	C. Seed, No. 3.	485	1,347	20	862	638	1,357	300	1,367	300		
5 Ohio.	C. Seed, No. 5.	490	1,346		836	644	1,357	50	1,371	50	Salt water, 1,367 feet.	
6 Ohio.	C. Seed, No. 6.	504	1,338		831	640	1,347	50	1,360	50		
7 Ohio.	C. Seed, No. 7.	505	1,311	4	836	661	1,370	150	1,380	150		

4 Ohio.....	Racop, No. 1.....	455	do.....	1,620	9	1,165	335	1,760	Dry	Salt water, 1,759 feet.....
			Bridgeport.....	1,965	15	515	985			
5 Snowden Bros.....	Armitage, No. 1.....	450	do.....	1,085	15	635	865			Salt water, 1,100 feet.....
			Buchanan-1.....	1,180	26	730	770			
			Buchanan-2.....	1,220	15	770	730			
			Stray.....	1,395	5	945	555			
			Kirkwood.....	1,570	26	1,120	380	1,606	100	
			Bridgeport.....	844	26	399	1,101			
			do.....	924	12	479	1,021			
			do.....	951	13	506	984			
6 Snowden Bros.....	Armitage, No. 2.....	445	Buchanan.....	1,140	30	665	805			Hole full of water, 1,140 feet.....
			"Gas".....	1,505	6	1,060	440	1,505	Show	
			Kirkwood.....	1,535	30	1,090	410	1,555		
			Tracey.....	1,578	5	1,133	367	1,578		Line and sand.....
			Bridgeport.....	838	17	419	1,081			
			do.....	910	21	471	1,029			
			do.....	960	120	521	979			Salt water, 931 feet.....
1 Snowden Bros.....	Piper, No. 10.....	439	Buchanan-1.....	1,150	40	711	789			
			Buchanan-2.....	1,200	10	821	679			
			"Gas".....	1,450	25	1,011	499			
			Kirkwood-1.....	1,481	20	1,042	458	1,481	Show	
			Kirkwood-2.....	1,511	19	1,072	428			
			Tracey-1.....	1,591	29	1,152	348			
			Tracey-2.....	1,630	25	1,191	369	1,704		
2 Snowden Bros.....	Piper, No. 3.....	437	Kirkwood.....	1,505	8	1,068	432			Gas 400 pounds pressure, 7,000-8,000 cubic feet gas.
3 Ohio.....	Stoltz, No. 2.....	435	do.....	1,463		1,028	472	1,463		Gas, 1,507 feet. Abandoned.
			do.....	1,439	40	1,004	496			
4 Ohio.....	Stoltz, No. 4.....	435	Tracey-1.....	1,588	16	1,153	347			
			Tracey-2.....	1,633	20	1,198	302	2,002	Dry	
5 Ohio.....	Stoltz, No. 3.....	436	Kirkwood-1.....	1,444	16	1,006	492			
			Kirkwood-2.....	1,475		1,039	461	1,660	Gas	Gas, 1,480 feet.
6 Ohio.....	Stoltz, No. 1.....	437	Kirkwood.....	1,460	14	1,023	477	1,463	30	
			do.....	1,461	30	1,026	474	1,470		Gas, 1,461 feet.
			Tracey-1.....	1,586	14	1,151	348			
7 Ohio.....	Stoltz, No. 5.....	435	Tracey-2.....	1,630	19	1,195	305	1,635	90	
			Buchanan.....	1,260		820	680			Salt water, 1,260 to 1,280 feet.
1 Ohio.....	Haines, No. 1.....	440	Stray.....	1,580	8	1,140	360			
			do.....	1,630	8	1,190	310			
			Kirkwood.....	1,730		1,290	210	1,833	Dry	Salt water, 1,730 to 1,745 feet.
1 Ohio.....	M. Martin, No. 2.....	434	Tracey.....	1,587		1,153	347	1,602	1,616	
2 Ohio.....	R. Hardacre, No. 1.....	436	do.....	1,596	10	1,160	340			
			McClosky.....	1,660	13	1,224	276	1,666	200	
			"Gas".....	1,375	5	939	561			
3 Ohio.....	R. Hardacre, No. 7.....	438	Kirkwood.....	1,457	6	1,021	479			
			Tracey.....	1,575	55	1,139	361	1,575	1,658	55



Lawrence County—Lukin Township.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face ele-va-tion—feet.	Sand.						Initial product—barrels.	Remarks.	
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.	Oil depth—feet.			Total depth—feet.
32 N. E.	1 Ohio		J. Crane, No. 1.	480	Bridgeport.	1,534	20	1,054	446	.....	1,571	Dry	Salt water.
					Bridgeport-2	830	42	.....	.....	.....	.....	.....	Show
					Bridgeport-3	940	5	.....	.....	940	.....	.....	.....
					Stray	1,304	11	.....	.....	.....	.....	.....	.....
					Buchanan-1	1,506	14	.....	.....	1,506	.....	.....	.....
S. E.	1 Snowden Bros.		Laughlin, No. 1.	469	Buchanan-2	1,614	118	.....	.....	1,705	.....	.....	.....
					Buchanan-2	1,750	25	.....	.....	1,705	.....	.....	Salt water, 1,775 feet.
					Kirkwood	1,985	15	.....	.....	1,985	.....	.....	.....
					Stray	2,152	4	.....	.....	2,152	2,165	.....	.....

## Lawrence County—Petty Township.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
1— N. E.	1 Ohio.....	G. Gray, No. 2.....	435	Kirkwood.....	1,417	20	982	518	1,417	1,451	150	.....
	2 Ohio.....	G. Gray, No. 3.....	435	"do".....	1,418	15	983	517	1,418	1,450	80	Gas, 1,335 feet.
	3 Ohio.....	G. Gray, No. 6.....	435	Kirkwood.....	1,353	16	900	600	1,426	1,442	60	.....
	4 Ohio.....	I. Judy, No. 1.....	435	"do".....	1,428	7	993	507	.....	.....	.....	.....
	5 Ohio.....	I. Judy, No. 2.....	435	Tracey.....	1,578	7	1,143	357	.....	1,678	15	Salt water, 1,464 feet.
	6 Ohio.....	I. Judy, No. 3.....	435	Kirkwood.....	1,443	23	1,008	492	1,446	1,466	.....	Drilling.
	7 Ohio.....	N. Updike, No. 3.....	435	"Gas".....	1,355	10	920	580	.....	.....	25	Gas, 1,435 feet.
	8 Ohio.....	N. Updike, No. 1.....	434	McClosky.....	1,650	12	1,215	285	.....	1,702	Dry	.....
	9 Ohio.....	N. Updike, No. 2.....	435	"Gas".....	1,328	17	893	607	1,335	1,445	20	.....
	10 Ohio.....	N. Updike, No. 4.....	434	Kirkwood.....	1,412	15	977	523	.....	.....	15	Gas, 1,560 feet.
	11 Ohio.....	N. Updike, No. 5.....	435	Tracey.....	1,325	10	991	509	1,428	.....	25	Gas, 1,406 feet.
N. W.	1 Snowdon Bros.....	Drole, No. 3.....	435	Kirkwood.....	1,560	9	1,126	374	1,406	1,660	.....	.....
				Kirkwood.....	1,406	890	971	529	1,406	.....	100	Gas.
				Bridgport.....	1,180	66	745	755	.....	.....	.....	do.
				"Gas".....	1,342	16	907	593	1,342	.....	.....	do.
				Kirkwood-1.....	1,420	21	988	515	1,420	.....	.....	Salt water, 1,087 feet.
				Kirkwood-2.....	1,498	28	1,053	437	.....	.....	.....	Salt water, 870 and 930 feet.
				Tracey.....	1,605	8	1,170	330	.....	1,695	.....	Gas.
				McClosky.....	1,687	105	1,252	248	.....	.....	.....	do.
				Bridgport.....	860	145	425	1,075	.....	.....	.....	Salt water, 870 and 930 feet.
				Buchanan.....	1,115	145	680	820	.....	.....	.....	Salt water, 1,170 feet.
				Stray.....	1,275	5	840	660	.....	.....	.....	.....
2 Snowdon Bros.....			435	"Gas".....	1,310	23	875	623	1,328	.....	.....	.....
				Kirkwood-1.....	1,370	20	835	605	1,370	.....	.....	.....
				Kirkwood-2.....	1,306	15	961	540	1,315	1,431	.....	.....

3	Snowden Bros.	425	Bridgeport. do. Buchanan. "Gas". Kirkwood-1 Kirkwood-2	815 860 900 1,110 1,318 1,383 1,394	25 45 83 130 8 12 28	380 1,120 1,085 1,085 1,085 1,150 to 1,240 feet.	Salt water.
4	Snowden Bros.	436	Drole, No. 8.	1,412 1,412 885 890 945	8 12 4 30 30	617 572 1,375 1,402 1,431	No record. Salt water.
5	Snowden Bros.	435	Drole, No. 5.	1,175 1,320 1,412 885 890 945	20 20 12 4 30 30	760 1,320 1,412 1,070 1,036 1,120 feet	Salt water.
6	Snowden Bros.	435	Drole, No. 4.	1,040 1,325 1,408 1,454 1,490 1,565	205 15 6 10 15 15	605 885 810 1,408 1,481 1,555 1,665	Salt water, 1,200 feet. Salt water. Gas, 1,490 feet. Gas, 1,585 feet. No record. Salt water, 1,020 and 1,210 feet.
7	Snowden Bros.	435	Drole, No. 10.	840	404	1,096	Salt water, 1,020 and 1,210 feet.
1	Snowden Bros.	436	Drole, No. 1.	1,300 864 885 1,050 1,307	15 85 15 125 13	864 636 1,071 886 829	35
2	Snowden Bros.	436	Drole, No. 6.	1,307	13	871	60
3	Snowden Bros.	436	Drole, No. 2.	1,298 805 824 851 1,143	14 11 15 122 64	863 370 1,130 1,111 584	Gas. No record.
4	Snowden Bros.	435	Piper, No. 1.	1,300 900 1,307	12 465 17	865 635 828	50
5	Snowden Bros.	435	Piper, No. 9.	1,307 960 1,311 1,445 1,460	17 15 15 12 20	872 628 614 986 625	Salt water, 900, 1050 feet. Salt water, 900, 1050 feet.
1	Snowden Bros.	435	Piper, No. 4.	1,311 1,445 1,460	15 12 20	875 625 491	Show
2	Snowden Bros.	436	Piper, No. 6.	1,460 855 1,200 1,308 930	420 1,090 25 765 70	1,080 628 735 627 1,004	Salt water, 855 feet. Salt water, 1,200 feet.
3	Snowden Bros.	435	Piper, No. 5.	1,200 1,308 930 930 1,307	25 765 70 496 22	735 627 1,004 1,004 873	Dry
4	Ohlo.	434	R. Judy, No. 1.	1,307 1,445 1,589	22 1,009 1,153	873 627 347	Dry
5	Ohlo.	434	R. Judy, No. 2.	1,307 1,445 1,589	22 1,009 1,153	873 627 347	Dry
6	Ohlo.	436	R. Judy, No. 3.	1,307 1,445 1,589	22 1,009 1,153	873 627 347	Dry

## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
1— S. E.	7	Ohio.....	R. Judy, No. 4.....	436	1,312	8	876	624				Salt water, 1,660 to 1,670 feet.
	8	Ohio.....	R. Judy, No. 5.....	436	1,660	10	1,224	276	1,700	1,700	Dry	Well abandoned.
	9	Ohio.....	M. Martin, No. 1.....	434	1,408	5	1,129	371	1,408		10	Gas, 1,408 to 1,413 feet.
	10	Ohio.....	M. Martin, No. 3.....	434	1,565	13	1,206	358	1,565			
	11	Ohio.....	M. Martin, No. 4.....	434	1,330	45	1,206	294	1,635			Dry
					1,640	1,358	1,224	344	1,634			Show Black oil.
2— N. E.	1	Ohio.....	Poland, No. 1.....	433	1,560	1,000	1,156	406				
	2	Ohio.....	Poland, No. 2.....	433	1,560	20	1,560	344				
	3	Ohio.....	Poland, No. 3.....	435	1,300	15	1,425	509				
	4	Snowden Bros.	Piper, No. 8.....	435	1,425	10	1,228	272	1,665	1,674	25	
	5	Ohio.....	D. Stoltz, No. 6.....	433	1,662	10	1,228	436				
	6	Ohio.....	Waggoner, No. 5.....	433	1,380	10	927	463				
	7	Ohio.....	Waggoner, No. 1.....	438	1,386	8	953	437	1,473	1,507	50	Gas, 1,470 feet.
	8	Ohio.....	Rigall, No. 1.....	450	1,470	30	1,037	437				
	9	Ohio.....	S. Jennings, No. 1.....	436	1,433	13	1,000	436				Gas, 1,497 to 1,513 feet.
	10	Ohio.....	Waggoner, No. 2.....	440	1,497	16	1,064		1,513			Gas, 1,497 to 1,513 feet.
	11	Ohio.....	Waggoner, No. 3.....	444								Drilling.
N. W. S. W.	1	Ohio.....	Waggoner, No. 4.....	440								4,000,000 cubic feet daily
	2	Ohio.....		444								Gas well. No record.
	3	Ohio.....		450								Gas, 1,450 to 1,475 feet.
												Gas, 1,450 to 1,475 feet.
												Gas, 1,450 to 1,475 feet.
												Gas, 1,450 to 1,475 feet.

S. E...	1 Ohio.....	A. R. Applegate, Tr. No. 1.	436	Buchanan.....	1,202	112	766	734	1,525	Gas	1,521 feet
	2 Ohio.....	A. R. Applegate, Tr. No. 13	436	Tracy.....	1,515	15	1,074	430	1,401	Gas, 1,375 feet	
	3 Morrison.....	C. Thorn, No. 3.....	437	Kirkwood.....	1,375	20	839	581	1,380	12	
	4 Morrison.....	C. Thorn, No. 2.....	442	"Gas".....	1,386	11	872	825	1,400	12	
	5 Morrison.....	C. Thorn, No. 4.....	448	"Gas".....	1,239	9	827	845	1,402	100	
	6 Ohio.....	A. R. Applegate, Tr. No. 15	437	Kirkwood.....	1,355	11	843	857	1,408	80	
	7 Ohio.....	A. R. Applegate, Tr. No. 12	436	do.....	1,312	10	804	838	1,372	135	
	8 Ohio.....	A. R. Applegate, Tr. No. 14	436	"Gas".....	1,385	13	847	853	1,345	130	
	9 Ohio.....	A. R. Applegate, Tr. No. 1	436	Kirkwood.....	1,297	58	846	834	1,300	110	
	10 Ohio.....	A. R. Applegate, No. 9.....	436	Tracy.....	1,335	20	819	831	1,379	200	
	11 Ohio.....	A. R. Applegate, No. 5.....	436	"Gas".....	1,250	60	824	876	1,583	Gas	1,509 feet
13— N. E...	12 Ohio.....	A. R. Applegate, No. 8.....	435	McClosky.....	1,583	42	1,073	333	1,630	30	
	1 Ohio.....	A. R. Applegate, Tr. No. 10	435	"Gas".....	1,288	8	752	648	1,288	45	
	2 Ohio.....	A. R. Applegate, Tr. No. 6.	435	Kirkwood.....	1,340	21	804	898	1,340	100	
	3 Ohio.....	A. R. Applegate, No. 3.....	433	"Gas".....	1,290	3	855	845	1,280	100	
	4 Ohio.....	A. R. Applegate, No. 4.....	438	Kirkwood.....	1,335	17	920	850	1,355	Gas, 1,515 feet	
	5 Ohio.....	A. R. Applegate, Tr. No. 19	433	Tracy.....	1,515	75	1,080	420	1,615	165	
	6 Ohio.....	A. R. Applegate, Tr. No. 18	428	McClosky.....	1,615	8	1,080	320	1,615	Gas, 1,502 feet	
	1 Ohio.....	Pepple, No. 3.....	436	Kirkwood.....	1,350	8	865	903	1,585	240	
	2 Ohio.....	Pepple, No. 10.....	435	Tracy.....	1,502	75	1,080	340	1,585	15	
	3 Ohio.....	Pepple, No. 7.....	435	McClosky.....	1,368	13	869	631	1,387	Gas	
	4 Ohio.....	Pepple, No. 5.....	435	"Gas".....	1,302	20	834	566	1,541	Drilling.....	
N. W..	5 Ohio.....	Pepple, No. 4.....	433	do.....	1,335	12	949	551	1,541	Gas, 1,662 feet	
	6 Ohio.....	Pepple, No. 9.....	435	Bridgeport.....	920	90	922	1,008	1,662	Gas, 1,371 feet. Well abandoned.	
	7 Ohio.....	Pepple, No. 8.....	435	Kirkwood.....	1,350	20	922	578	1,662	65	
	8 Craig & Lowrie.....	Gray, No. 3.....	436	McClosky.....	1,662	8	1,234	266	1,654	75	
	9 Craig & Lowrie.....	Gray, No. 1.....	434	"Gas".....	1,330	4	894	606	1,654	Black oil	
	1 Ohio.....	Pepple, No. 10.....	435	do.....	1,333	20	918	582	1,580	Green oil	
	2 Ohio.....	Pepple, No. 7.....	435	McClosky.....	1,580	15	1,145	335	1,617	60	
	3 Ohio.....	Pepple, No. 5.....	435	Kirkwood.....	1,375	18	940	860	1,375	35	
	4 Ohio.....	Pepple, No. 4.....	433	Kirkwood-1.....	1,384	28	963	857	1,384	20	
	5 Ohio.....	Pepple, No. 3.....	433	Kirkwood-2.....	1,408	12	973	827	1,438	35	
	6 Ohio.....	Pepple, No. 2.....	433	McClosky-1.....	1,599	6	1,186	334	1,611	75	
	7 Ohio.....	Pepple, No. 1.....	435	McClosky-2.....	1,623	30	1,181	319	1,631	75	



## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
6—												
S. W.	4	Ohio.....	R. Hardacre, No. 4.....	435	Kirkwood..... Tracey..... McClosky.....	1,425 1,598 1,625	22 8 11	990 1,163 1,190	510		30	
7—												
N. E.	1	Ohio.....	J. Bolles, No. 3.....	434	Tracey..... McClosky.....	1,609 1,700	11 20	1,175 1,296	325	1,720	20	
	2	Ohio.....	S. E. Smith, No. 1.....	434	do..... Kirkwood.....	1,665 1,420	26 10	1,231 986	269	1,675	30	
	1	Ohio.....	H. A. Hardacre, No. 4.....	434	Tracey..... McClosky.....	1,525 1,632	6 12	1,091 1,198	409	1,633		Gas, 1,528 feet.
N. W.	2	Ohio.....	H. A. Hardacre, No. 2.....	434	do.....	1,604	11	1,170	350	1,604	60	
	3	Ohio.....	H. A. Hardacre, No. 3.....	436	"Gas"..... Kirkwood.....	1,343 1,396	15 24	907 930	563	1,349	75	
	4	Ohio.....	R. M. Hardacre, No. 3.....	436	do.....	1,370	40	934	596	1,380		
	5	Ohio.....	R. M. Hardacre, No. 2.....	435	"Gas"..... McClosky.....	1,335 1,580	20 12	900 1,145	900	1,580	150	
	6	Ohio.....	I. B. Smith, No. 1.....	434	Kirkwood..... do.....	1,385 1,385	17 19	951 951	549	1,422		
	7	Ohio.....	I. B. Smith, No. 2.....	434	McClosky.....	1,578		1,144	356	1,616		
	8	Ohio.....	I. B. Smith, No. 3.....	434	Kirkwood.....	1,377		943	557	1,400		
	9	Ohio.....	M. Ridgely, No. 1.....	433	"Gas"..... Kirkwood-1.....	1,318 1,380	12 26	885 945	615	1,230	40	
	10	Ohio.....	M. Ridgely, No. 2.....	435	Kirkwood-2..... Tracey.....	1,420 1,515	10 9	965 938	515	1,406		
	11	Ohio.....	S. E. Smith, No. 2.....	435	Tracey.....	1,515		1,080	420	1,535		Gas, 1,615 feet.
S. W.	1	Ohio.....	A. Applegate, No. 2.....	433	Kirkwood.....	1,373		930	662	2,010		Dry
	2	Ohio.....	A. Applegate, No. 10.....	434	"Gas".....	1,303	12	870	1,305			
	3	Ohio.....	A. Applegate, No. 11.....	434	Kirkwood.....	1,371	23	943	557	1,377	200	
	4	Ohio.....	do.....	434	do.....	1,363	32	926	371	1,380	175	
	4	Ohio.....	A. Applegate, No. 4.....	434	"Gas".....	1,290	10	956	644	1,360	35	
	5	Ohio.....	A. Applegate, No. 12.....	433	Kirkwood..... do.....	1,350 1,350	30 30	821 821	579	1,363		
	6	Ohio.....						831	583	1,380	200	

6 Ohio.....	A. Applegate, No. 6.....	434	"Gas".....	1,266	14	852	649	1,266	1,356	50	
7 Ohio.....	A. Applegate, No. 13.....	435	Kirkwood.....	1,328	11	889	611	1,323	1,356	50	
8 Ohio.....	A. Applegate, No. 7.....	434	do.....	1,337	26	902	598	1,338	1,363	115	
9 Ohio.....	A. Applegate, No. 3.....	434	McClusky-1.....	1,578	6	1,174	356	1,578	1,652	126	
			McClusky-2.....	1,608	44	1,174	356	1,608	1,652	126	
			"Gas".....	1,267	20	883	637	1,267	1,336	Gas	
			Tracy.....	1,495		1,001	439	1,495	1,536	Gas	
			Bridgeport.....	1,800		456	1,044				
			Stray.....	1,270		886	664				
10 Shaffer & Smathers.....	E. Wiswall, No. 2.....	434	"Gas".....	1,302		888	632				
			Tracy.....	1,609		1,076	435				
			McClusky-1.....	1,577	17	1,143	357				
			McClusky-2.....	1,585	16	1,151	359				
			"Gas".....	1,283	10	849	651		1,630	550	
11 Shaffer & Smathers.....	E. Wiswall, No. 9.....	434	Kirkwood.....	1,308	8	944	536				
			Tracy.....	1,535	7	1,101	399				
			McClusky.....	1,612	10	1,178	322		1,636		
			Bridgeport.....	1,895		460	1,040				
12 Shaffer & Smathers.....	E. Wiswall, No. 3.....	435	Kirkwood.....	1,405	26	970	530				
			Tracy.....	1,517	13	1,052	418				
			McClusky.....	1,597	17	1,162	338		1,614		
13 Shaffer & Smathers.....	E. Wiswall, No. 1.....	435	"Gas".....	1,265	9	880	640				
14 Shaffer & Smathers.....	E. Wiswall, No. 7.....	435	Kirkwood.....	1,350	19	915	585		1,383		
15 Shaffer & Smathers.....	E. Wiswall, No. 8.....	435	do.....	1,363	23	928	572		1,399		
16 Shaffer & Smathers.....	E. Wiswall, No. 5.....	435	do.....	1,370	26	935	565		1,410		
			"Gas".....	1,310	10	876	634				
17 Shaffer & Smathers.....	E. Wiswall, No. 4.....	434	Kirkwood.....	1,383	22	949	551		1,405		
18 Shaffer & Smathers.....	E. Wiswall, No. 6.....	435	Kirkwood-1.....	1,405	23	970	530				
			Kirkwood-2.....	1,467	16	1,032	468				
			Bridgeport.....	1,800	7	1,456	1,044		1,730		
			"Gas".....	1,311	7	877	623				
1 Shaffer & Smathers.....	J. A. Wiswall, No. 2.....	434	Kirkwood-1.....	1,385	8	951	549				
			Kirkwood-2.....	1,470	26	1,170	330		1,669		
			McClusky.....	1,604							
2 Paden.....	J. A. Wiswall, No. 1.....	434	Kirkwood-2.....	1,490	11	1,055	445				
3 Shaffer & Smathers.....	J. A. Wiswall, No. 3.....	435	Tracy.....	1,570	15	1,135	365		1,615		
			"Gas".....	1,350	5	915	585				
4 Shaffer & Smathers.....	J. A. Wiswall, No. 4.....	435	Kirkwood.....	1,417	6	982	518		1,439		
5 Shaffer & Smathers.....	J. A. Wiswall, No. 5.....	434	Kirkwood-1.....	1,407	4	973	537				
6 Ohio.....	J. Bolles, No. 2.....	435	Kirkwood-2.....	1,438	10	1,004	496		1,454		
7 Ohio.....	J. Bolles, No. 1.....	435	Kirkwood.....	1,436	12	1,001	499		1,448		
			do.....	1,456	14	1,021	479		1,462		
8 Ohio.....	J. Bolles, No. 1.....	435	Tracy.....	1,602	26	1,174	326		1,473		
			McClusky.....	1,692	26	1,264	286		1,692		

S. E.

## Lawrence County—Perry Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur- face ele- va- tion— feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.	
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.					
11—					Bridgeport.....	890	90	425	1,075				Salt water, 900 to 920 feet.	
					do.....	955	65	520	980				Salt water, 1,000 to 1,020 feet.	
N. E.				435	Stray.....	1,225	10	700	710					
					do.....	1,237	38	802	698					
					do.....	1,273	12	938	562	1,380		Show		
					"Gas".....	1,425	25	990	510	1,430				
					Kirkwood.....	1,455	20	1,050	450					
				Tracey.....	1,535	5	1,100	400						
				McCleeky.....	1,595	28	1,180	340		1,670		Gas, 1,612 feet, "green" oil sand.		
2				445	Bridgeport.....	890			445	1,055				
					"Gas".....	1,420	16	975	525					
					Kirkwood.....	1,478	38	1,038	467					
					McCleeky.....	1,507	63	1,102	338			60		
					Tracey.....	1,545	15	1,097	403	1,550		40	Gas, 1,545 feet, salt water, 1,560 feet.	
S. E.				448	McCleeky.....	1,616	8	1,168	332					
					Tracey.....	1,580	20	1,102	398	1,584	1,617	110	Gas, 1,584 to 1,600 feet.	
					McCleeky.....	1,655	20	1,186	312	1,655	1,690	25	Gas, 1,655 feet.	
					Stray.....	1,300			822	678			No record.	
					do.....	1,320		1,352	148		1,825	Dry	No upper sands.	
6				486	McCleeky.....	1,737	23	1,252	248	1,740	1,813		Dry	No record.
					do.....	1,695	15	1,219	281	1,675	1,735	25	Gas, 1,739 feet.	
					Kirkwood.....	1,490	11	1,047	453	1,485		25		
					McCleeky.....	1,660	20	1,000	300	1,670	1,698	75		
					Bridgeport.....	1,610	50	1,010	50	543	967			
11				467	McCleeky.....	1,671	11	1,204	296	1,671	1,691	28	Gas and oil, 1,671 feet.	

12 Ohio.....	C. Aker, No. 3.....	464	Bridgeport.....	1,015	105	551	949	1,664	1,683	60 Gas, 1,665 to 1,680 feet.....
13 Ohio.....	A. Westall, No. 9.....	465	Bridgeport.....	1,010	85	547	933	1,640	1,663	20 Gas, 1,610 to 1,660 feet.....
14 Ohio.....	C. Aker, No. 2.....	455	Kirkwood.....	1,596	68	1,132	398	1,640	1,663	25
15 Ohio.....	C. Aker, No. 1.....	441	McClosky.....	1,490	5	1,025	475	1,650	1,705	70
16 Ohio.....	A. Westall, No. 2.....	448	Kirkwood.....	1,650	12	1,039	365	1,650	1,490	Gas, 1,405 feet.....
1 Ohio.....	H. Hardacre, No. 5.....	436	do.....	1,490	8	1,012	488	1,479	1,405	40
2 Ohio.....	H. Hardacre, No. 1.....	434	Tracy.....	1,405	10	1,129	371	1,565	1,640	65
3 Ohio.....	R. M. Hardacre, No. 1.....	434	McClosky.....	1,612	6	1,176	324	1,565	1,442	Gas, 1,418 feet.....
4 Ohio.....	R. Hardacre, No. 2.....	434	do.....	1,305	23	870	629	1,311	1,422	Gas, 1,515 feet.....
5 Ohio.....	R. Hardacre, No. 4.....	435	Kirkwood.....	1,417	5	983	517	1,422	1,540	Gas, 1,456 feet.....
6 Ohio.....	R. Hardacre, No. 3.....	432	Stray.....	1,460	20	1,025	475	1,422	1,640	10
7 Ohio.....	R. Hardacre, No. 6.....	432	Tracy.....	1,503	32	1,068	432	1,422	1,630	107
8 Ohio.....	R. Hardacre, No. 5.....	434	McClosky.....	1,305	4	873	627	1,422	1,630	100 Gas, 1,500 feet.....
9 Ohio.....	I. B. Smith, No. 4.....	433	Stray.....	1,458	10	1,196	305	1,627	1,391	80 Gas, 1,590 feet.....
10 Ohio.....	I. B. Smith, No. 5.....	433	McClosky-1.....	1,627	45	943	557	1,627	1,637	180
11 Ohio.....	Ridgely, No. 3.....	433	McClosky-2.....	1,375	5	1,175	325	1,615	1,392	85
12 Ohio.....	Ridgely, No. 4.....	432	McClosky.....	1,615	13	1,183	317	1,615	1,407	85
13 Morrison.....	McNeece, No. 2.....	435	McClosky.....	1,315	15	881	619	1,634	1,545	20
14 Paden.....	McNeece, No. 1.....	434	Kirkwood.....	1,634	8	1,200	300	1,634	1,499	Now the Morrison Oil Co.
15 Morrison.....	McNeece, No. 3.....	435	Kirkwood.....	1,368	36	935	565	1,634	1,426	140
1 Ohio.....	A. Westall, No. 6.....	434	McClosky.....	1,609	18	929	571	1,637	1,520	Gas, 1,512 feet.....
2 Ohio.....	A. Westall, No. 8.....	445	Kirkwood.....	1,362	12	863	637	1,650	1,542	Gas, 1,520 feet.....
3 Ohio.....	A. Westall, No. 11.....	450	McClosky.....	1,295	12	863	637	1,365	1,397	24 Gas, 1,364 feet.....
4 Ohio.....	Clint Thorn, No. 4.....	454	Kirkwood.....	1,352	24	920	580	1,363	1,330	Gas, 1,330 feet.....
5 Snowden Bros.....	Piper, No. 12.....	433	McClosky.....	1,321	13	886	614	1,407	1,375	35
6 Snowden Bros.....	Piper, No. 7.....	434	Kirkwood.....	1,410	6	975	525	1,407	1,402	Show
			Tracy.....	1,475	4	1,040	404	1,407	1,596	Gas, 1,523 feet.....
			Tracy.....	1,531	9	1,096	404	1,407	1,596	No record
			Tracy.....	1,469	8	1,207	283	1,407	1,596	
			McClosky.....	1,641	12	864	636	1,407	1,596	
			McClosky.....	1,298	12	935	565	1,407	1,596	
			Kirkwood.....	1,370	30	1,016	484	1,407	1,596	
			Tracy.....	1,450	18	1,068	432	1,407	1,596	
			Tracy.....	1,502	30	1,060	440	1,407	1,596	
			Tracy.....	1,505	65	500	1,000	1,407	1,596	
			Bridgeport.....	1,364	13	914	584	1,407	1,596	
			Kirkwood.....	1,890	95	436	1,064	1,407	1,596	
			Bridgeport.....	1,330	15	876	624	1,407	1,596	
			McClosky.....	1,375	23	921	579	1,407	1,596	
			Bridgeport.....	890	132	447	1,053	1,407	1,596	
			Buchanan.....	1,165	60	732	768	1,407	1,596	
			McClosky.....	1,315	30	882	618	1,407	1,596	
			Kirkwood.....	1,384	16	931	549	1,407	1,596	
			Tracy-1.....	1,486	29	1,063	447	1,407	1,596	
			Tracy-2.....	1,523	8	1,090	410	1,407	1,596	

12—  
N. E...

N. W..

## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
12— N. W.	7	Ohio.....	G. Gray No. 1 (acct. 4).....	437	"Gas", Tracy.....	1,325 1,572	10 12	888 1,135	612 365		1,655	Gas.....	Drilling.....
	8	Ohio.....	G. Gray (acct. 4), No. 2.....	436	Kirkwood.....	1,441	13	994	506			30	Gas, 1,607 feet. Now Morrison Oil Co.....
8. W.	9	Ohio.....	G. Gray (acct. 1), No. 1.....	447	McClosky.....	1,607	14	1,160	340	1,613			No record.
	1	Paden.....	C. Thorn, No. 1.....	459	do.....	1,627		1,168	332				
	2	Morrison.....	C. Thorn, No. 5.....	469	"Gas", Kirkwood.....	1,335	10	878	622				
	3	Ohio.....	C. Thorn, No. 2.....	457	do.....	1,385	40	928	572	1,385	1,425	125	
	4	Ohio.....	C. Thorn, No. 3.....	442	"Gas", Kirkwood.....	1,361	38	919	581	1,390	1,405	100	
	5	Ohio.....	C. Thorn, No. 1.....	449	do.....	1,360	35	911	589				
	6	Ohio.....	Westall, No. 4.....	460	Kirkwood.....	1,408	16	960	540	1,409	1,430	130	
	6	Ohio.....	Westall, No. 4.....	460	McClosky.....	1,613	37	1,153	347	1,613	1,659	35	
	7	Ohio.....	Westall, No. 10.....	464	Bridgeport.....	1,000	85	536	964				
	8	Ohio.....	Westall, No. 7.....	450	Tracy.....	1,574	96	1,110	390	1,580	1,661		Gas, 1,580 to 1,600 feet.
	9	Ohio.....	Westall, No. 5.....	463	McClosky.....	1,465	10	1,015	485			50	
	9	Ohio.....	Westall, No. 5.....	463	"Gas", Kirkwood.....	1,638	12	1,188	312	1,638	1,700	75	
	10	Ohio.....	Westall, No. 3.....	447	Tracy.....	1,352	20	889	611	1,352	1,475		Gas, 1,432 feet.
	11	Ohio.....	Westall, No. 3.....	447	"Gas", Kirkwood.....	1,372	5	925	575			50	
	11	Ohio.....	Westall, No. 1.....	439	do.....	1,416	20	969	531	1,430		60	
	13	Ohio.....	Klinger, No. 3.....	435	do.....	1,440	11	907	498	1,442		100	
	13	Ohio.....	Klinger, No. 6.....	436	do.....	1,412	11	977	523	1,415		70	
	14	Ohio.....	Pepple, No. 1.....	437	do.....	1,395	17	959	541	1,400	1,420		
	14	Ohio.....	Pepple, No. 1.....	437	Kirkwood-1.....	1,408	7	972	528				
	14	Ohio.....	Pepple, No. 1.....	437	McClosky.....	1,462	18	1,026	476				
	15	Ohio.....	Pepple, No. 2.....	433	McClosky.....	1,616		1,179	321		1,620		Dry Salt water, 1,616 feet.
	15	Ohio.....	Pepple, No. 2.....	433	Kirkwood.....	1,429	12	987	513	1,421		60	
	16	Ohio.....	Pepple, No. 6.....	435	Kirkwood-1.....	1,405	16	970	530	1,405		40	Gas, 1,405 feet.
	16	Ohio.....	Pepple, No. 6.....	435	Kirkwood-2.....	1,496	20	1,001	430	1,405			Salt water, 1,470 feet.
	16	Ohio.....	Pepple, No. 6.....	435	Tracy.....	1,598	7	1,133	307	1,568	1,610	40	



## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
N. W.	10	Craig & Lowrie	Gray, No. 2	434	Kirkwood-1 Kirkwood-2	1,416 1,447	15 35	982 1,013	518 487	1,416 1,447			Broken sand, 1,447 to 1,453 feet.
	11	Craig & Lowrie	Gray, No. 4	434	McCloskey-1	1,605	10	1,171	329	1,605			
	12	Ohio	Gray, No. 1	434	McCloskey-2	1,632	8	1,198	302	1,632			
	13	Ohio	Gray, No. 2	434	McCloskey	1,654	16	1,220	280	1,654			Gas, 1,654 feet.
	14	Ohio	Gray, No. 3	434	do.	1,390	22	856	544	1,408			
S. W.	1	McAuliff	A. Martin, No. 2	432	Kirkwood	1,392	39	858	542	1,397			
	2	McAuliff	A. Martin, No. 1	432	Kirkwood	900	85	466	1,034	1,462			
	3	Haney & Milligan	A. Martin, No. 1	427	Kirkwood	1,358	22	924	576	1,358			No record.
	4	Ohio	A. R. Applegate, Tr. No. 16	434	Tracy	1,430	8	1,003	497	1,432			
	5	Ohio	A. R. Applegate, Tr. No. 11	427	McCloskey-1	1,543	12	1,116	394				Salt water.
	6	Ohio	L. Green, No. 1	430	McCloskey-2	1,620	9	1,193	307				
	7	Ohio	Douglas, No. 2	435	Kirkwood-1	1,645	10	1,228	272				
	8	Ohio	Douglas, No. 1	430	Kirkwood-2	1,410	23	878	524				
	9	Ohio	B. H. Crutchfield, No. 1	428	McCloskey	1,620	16	1,186	314	1,630			
	10	Ohio	E. K. Crutchfield, No. 1	428	"Gas"	1,580	10	983	547	1,603			
	11	Ohio	E. K. Crutchfield, No. 2	420	McCloskey	1,462	20	1,175	325	1,603			

S. E.	12 Ohio.....	E. K. Crutchfield, No. 3.....	434	"Gas".....	1,397	6	963	537	1,485	1,520	.....	537	.....
	1 Ohio.....	Perry King, No. 33.....	434	"Gas".....	1,485	35	1,051	449	1,485	1,520	30	.....	.....
	2 Ohio.....	J. R. King, No. 1.....	433	"Gas".....	1,383	24	949	551	1,397	1,450	65	.....	.....
	3 Ohio.....	E. Applegate, No. 2.....	433	Stray.....	1,424	26	960	510	1,427	1,450	75	.....	.....
14— N. E.	4 Ohio.....	E. Applegate, No. 1.....	433	"Gas".....	1,367	8	934	566	1,367	1,400	.....	.....	.....
	1 Ohio.....	J. Klinger, No. 1.....	449	"Gas".....	1,393	10	960	540	1,400	1,455	.....	.....	.....
	2 Ohio.....	J. Klinger, No. 5.....	438	Kirkwood.....	1,430	15	997	503	.....	.....	.....	.....	.....
	3 Ohio.....	J. Klinger, No. 8.....	442	Tracey.....	1,390	12	957	543	.....	.....	.....	.....	.....
N. W.	4 Ohio.....	J. Klinger, No. 2.....	440	"Gas".....	1,490	28	845	635	1,490	1,720	50	Gas, 1,517 feet.	.....
	5 Ohio.....	J. Klinger, No. 4.....	470	Kirkwood.....	1,378	22	945	555	1,378	.....	120	.....	.....
	6 Ohio.....	J. Klinger, No. 7.....	440	do.....	1,431	15	983	518	1,443	.....	125	.....	.....
	7 Ohio.....	J. Klinger, No. 3.....	438	do.....	1,452	12	994	506	1,452	.....	7	.....	.....
S. E.	1 Haywood.....	J. Klinger, No. 6.....	442	do.....	1,453	30	1,011	480	1,455	1,472	.....	.....	.....
	2 Craig & Lowrie.....	J. Klinger, No. 9.....	440	do.....	1,660	25	1,220	290	1,670	1,775	25	.....	.....
	3 Craig & Lowrie.....	J. Klinger, No. 10.....	440	do.....	1,660	25	1,220	290	1,670	1,775	100	.....	.....
	4 Craig & Lowrie.....	J. Klinger, No. 11.....	440	do.....	1,498	11	1,023	477	1,498	1,549	145	.....	.....
15—	1 Haywood.....	O. H. Smith, No. 1.....	481	do.....	1,498	51	1,028	472	1,545	1,549	50	.....	.....
	2 Craig & Lowrie.....	Waggoner, No. 1.....	470	do.....	1,720	31	1,249	251	1,730	1,761	.....	.....	.....
	3 Craig & Lowrie.....	Martin, No. 2.....	443	Stray.....	1,490	5	1,020	480	1,906	.....	.....	.....	.....
	4 Craig & Lowrie.....	Martin, No. 1.....	441	Kirkwood.....	1,700	3	1,257	243	1,945	.....	.....	.....	.....
N. E.	1 Snowden Bros.....	Moudy, No. 1.....	438	Kirkwood.....	1,468	5	1,027	473	.....	.....	.....	.....	.....
	2 Snowden Bros.....	Moudy, No. 2.....	438	McClosky.....	1,672	16	1,231	269	1,967	.....	.....	.....	.....
	3 Snowden Bros.....	Moudy, No. 3.....	438	Bridgeport.....	900	45	462	1,038	.....	.....	.....	.....	.....
	4 Snowden Bros.....	Moudy, No. 4.....	438	Bridgeport and Buchanan.....	1,000	115	563	938	.....	.....	.....	.....	.....
17— N. E.	1 Snowden Bros.....	Moudy, No. 5.....	438	Buchanan.....	1,250	20	812	688	.....	.....	.....	.....	.....
	2 Snowden Bros.....	Moudy, No. 6.....	438	Stray.....	1,375	17	937	563	.....	.....	.....	.....	.....
	3 Snowden Bros.....	Moudy, No. 7.....	438	"Gas".....	1,465	20	1,027	473	1,465	.....	.....	.....	.....
	4 Snowden Bros.....	Moudy, No. 8.....	438	Kirkwood.....	1,500	50	1,062	434	.....	.....	.....	.....	.....
N. W.	1 Snowden Bros.....	Moudy, No. 9.....	438	McClosky.....	1,680	12	1,242	258	1,775	.....	.....	.....	.....
	2 Snowden Bros.....	Moudy, No. 10.....	438	McClosky.....	1,680	12	1,242	258	1,775	.....	.....	.....	.....
	3 Snowden Bros.....	Moudy, No. 11.....	438	Bridgeport.....	883	20	404	1,092	.....	.....	.....	.....	.....
	4 Snowden Bros.....	Moudy, No. 12.....	438	do.....	1,003	20	528	972	.....	.....	.....	.....	.....
17— N. E.	1 Snowden Bros.....	Moudy, No. 13.....	438	do.....	1,065	20	620	890	.....	.....	.....	.....	.....
	2 Snowden Bros.....	Moudy, No. 14.....	438	do.....	1,192	18	717	783	.....	.....	.....	.....	.....
	3 Snowden Bros.....	Moudy, No. 15.....	438	Buchanan-1.....	1,315	55	840	660	.....	.....	.....	.....	.....
	4 Snowden Bros.....	Moudy, No. 16.....	438	Buchanan-2.....	1,520	76	1,045	455	.....	.....	.....	.....	.....
N. W.	1 Snowden Bros.....	Moudy, No. 17.....	438	Kirkwood.....	1,635	13	1,160	340	.....	.....	.....	.....	.....
	2 Snowden Bros.....	Moudy, No. 18.....	438	Tracey.....	1,763	99	1,288	212	.....	.....	.....	.....	.....
	3 Snowden Bros.....	Moudy, No. 19.....	438	McClosky.....	1,937	8	1,462	38	.....	.....	.....	.....	.....
	4 Snowden Bros.....	Moudy, No. 20.....	438	Kirkwood.....	1,598	22	1,161	337	.....	.....	.....	.....	.....
N. W.	1 Snowden Bros.....	Moudy, No. 21.....	438	Tracey.....	1,727	17	1,290	201	.....	.....	.....	.....	.....
	2 Snowden Bros.....	Moudy, No. 22.....	438	McClosky.....	1,763	.....	1,365	135	.....	.....	.....	.....	.....
	3 Snowden Bros.....	Moudy, No. 23.....	438	Kirkwood-1.....	1,433	5	998	502	.....	.....	.....	.....	.....
	4 Snowden Bros.....	Moudy, No. 24.....	438	Kirkwood-2.....	1,453	32	1,017	483	.....	.....	.....	.....	.....



## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur- face ele- va- tion— feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
17— N. W. S. W.	2	Central Refining Co.	Klinger, No. 1.	435	872	32	437	1,063	875	919		
	1	Ohio	J. Bolles, No. 1.	436	1,347	68	911	589	1,451	1,483		Gas, 1,451 feet.
	2	Ohio	Ridgely, No. 2.	436	1,451	29	1,015	485	1,451	1,483	150	
	3	Ohio	J. Bolles, No. 3.	436	1,369	24	933	567	1,372	1,423	150	
	4	Ohio	W. Westall, No. 5.	436	1,424	20	988	512	1,424	1,571	40	
	5	Ohio	W. Westall, No. 3.	436	1,340	25	904	596	1,340	1,447	50	
	6	Ohio	W. Westall, No. 4.	437	1,318	15	892	618	1,318		35	Salt water.
	7	Ohio	W. Westall, No. 1.	437	1,356	12	920	590				
	8	Ohio	Skiles, No. 4.	435	1,378	12	942	558	1,396			
	9	Ohio	Skiles, No. 7.	434	1,282	15	845	655	1,305		25	No record.
S. E.	1	Central Refining Co.	M. Wood, No. 1.	436	1,384	16	950	550	1,384	1,402	60	
	2	Central Refining Co.	M. Wood, No. 2.	433	1,413	18	1,034	466	1,470	1,491	30	
	3	Central Refining Co.	M. Wood, No. 3.	433	1,413	16	980	520	1,418	1,435		No record.
	1	Shaffer & Smathers.	Wright, No. 1.	436	900	10	467	1,033				Dry
	2	Shaffer & Smathers.	W. Applegate, No. 9.	436	1,343	15	910	590		1,475		
	3	Shaffer & Smathers.	W. Applegate, No. 6.	436	1,430	5	994	506				
18— N. E.	1	Shaffer & Smathers.	W. Applegate, No. 5.	436	1,596	16	970	530		1,706		Dry
	2	Shaffer & Smathers.	W. Applegate, No. 8.	436	1,406	19	487	1,013		1,422	60	
	3	Shaffer & Smathers.	W. Applegate, No. 8.	436	923	20	484	1,016		942	125	
	4	Shaffer & Smathers.	W. Applegate, No. 8.	436	920	20	484	1,016				
	5	Shaffer & Smathers.	W. Applegate, No. 5.	436	1,619	15	467	1,033		1,640	60	
					903	10	846	654				
					1,233	8	1,014	486			19	
					1,450	7	1,048	451			60	
					1,483	16	1,079	421				Gas, 1,483 feet.
					1,518	10	1,144	356				
					1,560	0	1,170	330				Gas sand.
					1,604					1,612		

6	Shaffer & Smathers	W. Applegate, No. 1	436	Bridgeport	890	12	451	1,046	1,455	115
7	Shaffer & Smathers	W. Applegate, No. 3	436	Stray	1,433	10	997	1,003	910	50
				Bridgeport	888	17	454	1,046		30
				"Gas"	888	32	452	1,048		Broken sand
8	Shaffer & Smathers	W. Applegate, No. 7	436	Stray	1,301	16	868	632		75
				Tracy	1,430	10	994	506		
				Tracy	1,500	10	1,064	436		
				do	1,565	3	1,120	371		
				do	1,595	3	1,159	341		
9	Shaffer & Smathers	W. Applegate, No. 2	436	McClosky	1,601	6	1,165	335		
10	Shaffer & Smathers	W. Applegate, No. 4	436	Bridgeport	1,888	32	452	1,048	1,617	1,075
				McClosky	1,595	20	1,150	341	940	50
				Stray	1,637	1	1,201	206		20
				do	1,771	1	1,335	165	1,780	Salt water
11	Central Refining Co.	Klinger, No. 5	436	Bridgeport	868	45	432	1,068		do
				"Gas"	1,307	7	871	638	1,314	
				Kirkwood	1,343	15	907	593		
				Bridgeport	875	42	430	1,061	880	
				"Gas"	1,200		854	646		
12	Central Refining Co.	Klinger, No. 11	436	Kirkwood-1	1,140	20	904	593		
				Kirkwood-2	1,118	22	982	518	1,420	
				Tracy	1,500	15	1,064	436		Gas, 1,500 feet
13	Central Refining Co.	Klinger, No. 10	436	McClosky	1,865	47	1,120	372	1,585	Oil, 1,608 feet
14	Central Refining Co.	Klinger, No. 8	436	Kirkwood-2	1,425	25	980	511	1,483	
15	Central Refining Co.	Klinger, No. 9	436	Bridgeport	868	42	432	1,068	870	922
16	Central Refining Co.	Klinger, No. 3	436	do	890	30	454	1,046	905	936
				"Gas"	1,298	60	863	1,320	1,362	
				Bridgeport	838	41	402	1,098	840	Salt water, 863 feet
17	Central Refining Co.	Klinger, No. 1	436	Bridgeport and Buchanan	961	159	525	975		Salt water, 961 feet
				"Gas"	1,245	32	809	691		Gas, 1,247 feet
				Kirkwood	1,312	45	876	624	1,316	
				Bridgeport	820	20	394	1,116		
18	Central Refining Co.	Klinger, No. 2	436	do	975		530	961		
				"Gas"	1,245		820	671	1,270	
19	Central Refining Co.	Klinger, No. 4	436	Kirkwood	1,318	64	883	618	1,382	
20	Central Refining Co.	Klinger, No. 6	436	Bridgeport	1,880	16	444	1,050	880	
21	Central Refining Co.	Klinger, No. 13	436	Kirkwood	1,385	33	940	651	1,390	1,421
1	Ohio	Perry King, No. 39	435	Kirkwood	1,359	10	924	576		No record. Drilling
2	Ohio	Perry King, No. 28	435	McClosky	1,580	15	1,145	355	1,580	
				Stray	1,570	4	1,135	365	1,570	Production increased to 200 bbls. the 2d day
				McClosky	1,604	14	1,109	331	1,604	1,618
3	Ohio	Perry King, No. 40	435	do	1,573	34	1,138	362	1,585	1,607
4	Ohio	Perry King, No. 24	434	Kirkwood	1,300	8	866	634		
				Tracy	1,485	1	1,051	449	1,051	Gas, 1,485 feet
				McClosky	1,588	26	1,154	346	1,585	Production increased to 1,320 bbls. 2d day
5	Ohio	Perry King, No. 44	434	Kirkwood	1,339	11	905	595		
6	Ohio	Perry King, No. 34	435	McClosky	1,592	8	1,158	342	1,698	Dry
				do	1,595	5	1,180	340	1,616	25

N. W..

## Lawrence County—Petty Township—Continued

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face ele-va-tion—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.	Name.				
1 <sup>st</sup> N. W.	7	Ohio.....	Perry King, No. 27.....	434	898	47	464	1,036	898	953	90	Well abandoned.....	
	8	Ohio.....	Perry King, No. 31.....	434	1,565	20	1,131	369	1,592	1,615	250		
	9	Ohio.....	Perry King, No. 26.....	434	1,290	11	856	644	1,260				
	10	Ohio.....	Perry King, No. 29.....	434	1,329	17	885	605	1,335	1,359	65	Flowing well. Production 2d day, 2,000 bbls.	
				Perry King, No. 28.....	434	1,565	47	1,131	369	1,575	2,400		
	11	Ohio.....	Perry King, No. 22.....	435	1,327	5	892	608					
	12	Ohio.....	Perry King, No. 18.....	436	1,349	11	914	596	1,349	1,362	60		
	13	Ohio.....	Perry King, No. 12.....	436	1,312	37	876	624	1,312	1,349	50		
				"Gas",	1,268	20	832	668					
				Kirkwood.....	1,342	40	906	594	1,342	1,348	25		
				"Gas",	1,275	5	840	660					
	14	Ohio.....	A. Applegate, No. 2.....	435	1,292	18	857	643	1,292				
				Kirkwood.....	1,350	30	915	585					
	15	Ohio.....	A. Applegate, No. 5.....	433	1,360	12	927	573	1,360				
16	Ohio.....	A. Applegate, No. 7.....	435	1,400	13	967	533		1,413	10			
8. W.			Tracey.....	1,465	20	1,050	450						
			Tracey.....	1,515	60	1,081	419		1,600	1,620	1,200	Gas, 1,485 feet.	
	17	Ohio.....	A. Applegate, No. 9.....	434	1,598	67	1,164	336	1,606	1,666	176	Gas, 1,515 feet.	
			Bridgeport.....	435	1,500	75	1,015	985					
	18	Ohio.....	A. Applegate, No. 17.....	435	1,395	15	940	540	1,395	1,591	36		
			Kirkwood.....	1,420	10	886	614						
	19	Ohio.....	A. Applegate, No. 8.....	434	1,500	23	1,066	434					
			Tracey.....	1,527	23	1,163	337		1,597	1,620	1,400		
	1	Ohio.....	Perry King, No. 14.....	433	1,356	31	922	578	1,355	1,368	30		
	2	Ohio.....	Perry King, No. 11.....	434	1,513	22	877	621	1,513		123	Gas, 1,513 feet.	
	3	Ohio.....	Perry King, No. 20.....	435	1,312	46	877	623	1,312	1,357	60		
			Kirkwood.....	1,296	702							Gas, 1,281 feet.	
	4	Ohio.....	Perry King, No. 5.....	434	1,296	204	864	930			60	Gas, 1,296 feet.	

2 Ohio.....	Skiles, No. 8.....	433	"Gas".....	1,345	18	912	588	1,345	1,428	25	
3 Ohio.....	Skiles, No. 3.....	436	Kirkwood.....	1,392	26	956	544	1,392	1,418	45	
4 Ohio.....	Skiles, No. 5.....	437	Bridgeport.....	922	31	485	1,015	922	953	100	
5 Ohio.....	Skiles, No. 1.....	442	Kirkwood-1.....	1,294	4	852	648			30	
6 Ohio.....	Skiles, No. 6.....	427	Kirkwood-2.....	1,313	41	871	629	1,313			
			Kirkwood-1.....	1,350	12	923	577				
			Kirkwood-2.....	1,431	15	1,004	496	1,431	1,453	100	
			Bridgeport.....	826	40	399	1,101				
			do.....	871	59	444	1,056				
			do.....	955	105	528	972				Salt water, 998 feet.
			do.....	1,060	5	653	847				Salt water.
7 Bridgeport.....	M. Wood, No. 11.....	427	Buchanan.....	1,130	68	703	797				
			Stray.....	1,232	9	805	665				
			"Gas".....	1,335	13	908	592				
			Kirkwood-1.....	1,397	10	970	530	1,406			
			Kirkwood-2.....	1,433	17	1,005	494	1,445			
			Tracey.....	1,470	25	1,043	457	1,475	1,505		
			Bridgeport.....	785	15	357	1,143				
			do.....	840	10	412	1,088				
			do.....	870	27	442	1,058				
			do.....	930	113	502	998				Salt water, 980 feet.
8 Bridgeport.....	M. Wood, No. 12.....	428	Buchanan.....	1,105	82	677	823				Salt water, 1,148 feet.
			Stray.....	1,211	13	783	717				
			Kirkwood-1.....	1,368	3	960	540				
			Kirkwood-2.....	1,394	26	966	534	1,394			Show
			Stray.....	1,435	8	1,007	493	1,437			
			Tracey.....	1,462	28	1,034	466	1,462	1,498		
9 Bridgeport.....	M. Wood, No. 7.....	430	Bridgeport.....	825		390	1,110				No record.
			do.....	915	110	490	1,020	930			
			Buchanan.....	1,110	40	675	825				Salt water, 985 feet.
10 Bridgeport.....	M. Wood, No. 10.....	435	"Gas".....	1,285	18	850	650				
			Kirkwood.....	1,333	72	898	602	1,340 } 1,408			
			Kirkwood-1.....	1,312	15	872	628				Slate, 1,327 to 1,329 feet.
11 Bridgeport.....	M. Wood, No. 4.....	440	Kirkwood-2.....	1,329	13	899	611				
12 Bridgeport.....	M. Wood, No. 5.....	439	Kirkwood.....	1,296	51	857	643		1,347		
13 Bridgeport.....	M. Wood, No. 2.....	430	Kirkwood.....	1,279	54	849	651	1,332	1,341		No record.
14 Bridgeport.....	M. Wood, No. 9.....	428	Kirkwood.....								No record.
15 Bridgeport.....	M. Wood, No. 1.....	422	Stray.....	1,433	20	1,002	498				do.
16 Bridgeport.....	M. Wood, No. 3.....	422	Stray.....								Red rock, 1,300, 1,360 and 1,423 feet.
17 Bridgeport.....	M. Wood, No. 8.....	431	Bridgeport.....	910		475	1,025		1,459		
			do.....	875	30	445	1,055		940		
18 Bridgeport.....	M. Wood, No. 6.....	435	do.....	1,000	75	570	830				
			Buchanan.....	1,130	100	700	800				
			"Gas".....	1,275	19	845	655				
19 Bridgeport.....	M. Wood, No. 13.....	430	Kirkwood.....	1,380	10	950	550				
			Tracey.....	1,590	15	1,160	340				
			McCluskey-1.....	1,670	12	1,240	260				
			McCluskey-2.....	1,698	7	1,268	232		1,705		Salt water.....

## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
19— N. W.	2	Bridgeport.	Cooper, No. 9.	433	Kirkwood-1.....	1,298	13	865	635	1,298		
					Kirkwood-2.....	1,320	12	887	613	1,322		
					Kirkwood-3.....	1,355	30	923	578	1,355		
					Tracy.....	1,485	75	1,083	448	1,560	Gas	3,000,000 cu. ft. gas daily from 1,510 to 1,560 feet.
	3	Bridgeport.	Cooper, No. 6.	433	Kirkwood-1.....	1,319	34	886	614	1,320	15	
					Kirkwood-2.....	1,375	10	942	588	1,421		
	4	Bridgeport.	Cooper, No. 11.	433	Tracy.....	1,515	81	1,083	418	1,571		3,000,000 cu. ft. gas daily from 1,515 to 1,555 feet.
					Stray.....	1,596	9	1,103	337	1,596	80	Quit in sand.
	5	Bridgeport.	Cooper, No. 4.	437	McClosky.....	1,612	29	1,170	321	1,612	17	
					Kirkwood.....	1,298	102	861	639	1,315		
	6	Bridgeport.	Cooper, No. 3.	436	do.....	1,314		878	622	1,320		
					Tracy.....	1,475		1,039	461	1,525	Gas	7,500,000 cu. ft. gas daily from 1,515 feet, 650 pounds rock pressure ..
	7	Bridgeport.	Cooper, No. 2.	437	Kirkwood.....	1,210	58	873	627	1,235	25	
					"Gas".....	1,280	14	854	646	1,338		
	8	Bridgeport.	Cooper, No. 8.	436	Kirkwood-1.....	1,326	30	900	600		Show	
					Kirkwood-2.....	1,370	15	944	556			
					Tracy-1.....	1,475	35	1,049	451	1,375		1,000,000 cubic feet gas daily from 1,475 to 1,510 feet.
					Tracy-2.....	1,545	10	1,129	361	1,570		
	9	Bridgeport.	Cooper, No. 5.	436	McClosky.....	1,531	38	1,155	345	1,602	70	
					Kirkwood-1.....	1,380	42	924	576	1,615		
					Kirkwood-2.....	1,405	10	960	531	1,371		Sand broken, 1,371 to 1,393 feet.
					Kirkwood-3.....	1,414	4	942	514	1,406		Well abandoned.

10	Bridgeport.....	Cooper, No. 12.....	435	Bridgeport.....	880	32	445	1,035	.....	Well abandoned. No record.
11	Bridgeport.....	Cooper, No. 13.....	435	do.....	980	80	555	945	.....	.....
				Buchanan.....	1,050	98	645	865	.....	.....
				Stray.....	1,191	26	756	744	.....	.....
				"Gas".....	1,314	23	879	821	1,385	1,447
				do.....	1,297	23	870	850	1,297	.....
12	Bridgeport.....	Cooper, No. 7.....	437	Kirkwood-1.....	1,375	21	948	852	1,350	100
				Kirkwood-2.....	1,408	12	979	821	1,428	.....
				"Gas".....	1,260	16	834	664	1,275	.....
13	Bridgeport.....	Cooper, No. 10.....	426	Kirkwood-1.....	1,330	30	904	690	1,340	.....
				Kirkwood-2.....	1,365	20	939	661	1,348	.....
				"Gas".....	1,260	15	860	640	1,285	.....
14	Ohio.....	Perry King, No. 41.....	430	Kirkwood.....	1,365	47	925	878	1,365	1,402
				"Gas".....	1,258	29	851	649	1,285	115
				"Gas".....	1,328	65	884	605	1,357	.....
15	Ohio.....	Perry King, No. 30.....	434	McGlosky.....	1,567	17	1,153	847	1,587	160 Gas, 1,587 feet.
				Kirkwood-1.....	1,377	35	894	606	1,327	45
16	Ohio.....	Perry King, No. 38.....	433	Kirkwood.....	1,311	7	879	621	1,362	.....
				Kirkwood-1.....	1,345	15	913	637	1,345	2
17	Ohio.....	Perry King, No. 21.....	432	Stray.....	1,455	1	1,053	447	1,533	Gas.
				Kirkwood-2.....	1,340	45	908	662	1,340	120
18	Ohio.....	Perry King, No. 37.....	432	do.....	1,391	29	951	649	1,533	Gas, 1,518 feet.
				Kirkwood.....	1,518	65	1,078	422	1,533	.....
1	Ohio.....	Bowen, No. 3.....	440	Tracey.....	1,400	7	974	526	1,600	Gas, 1,512 to 1,518 feet.
				Kirkwood.....	1,512	7	1,096	414	1,600	50
2	Ohio.....	Bowen, No. 7.....	426	Tracey.....	1,600	20	1,174	326	1,600	25
				McGlosky.....	1,375	10	951	549	1,380	.....
3	Ohio.....	Bowen, No. 2.....	424	Kirkwood.....	1,371	11	947	553	1,618	10
				do.....	1,600	18	1,176	324	1,600	.....
4	Ohio.....	Bowen, No. 8.....	424	McGlosky.....	1,356	20	932	568	1,638	Gas, 1,521 feet.
				Kirkwood.....	1,521	15	1,068	452	1,638	7
5	Ohio.....	Bowen, No. 6.....	433	Tracey.....	1,636	5	1,183	317	1,390	150
				McGlosky.....	1,374	22	949	531	1,418	10
6	Ohio.....	Bowen, No. 1.....	447	Kirkwood.....	1,418	22	946	554	1,430	80
7	Ohio.....	Bowen, No. 5.....	469	do.....	1,420	41	946	554	1,430	.....
8	Ohio.....	Bowen, No. 4.....	474	do.....	1,796	205	321	1,179	1,444	Light
				Bridgeport.....	1,444	26	970	530	1,444	.....
9	Bridgeport.....	Bennett, No. 3.....	474	Kirkwood-1.....	1,477	16	1,003	497	1,734	Gas sand.
				Kirkwood-2.....	1,563	28	1,119	381	1,734	Quit in hard lime.
				Tracey.....	1,726	6	1,262	248	1,404	.....
				McGlosky.....	1,301	15	932	568	1,389	100 Gas, 1,348 feet.
10	Bridgeport.....	Bennett, No. 1.....	459	Kirkwood.....	1,347	15	902	698	1,343	90
				Kirkwood-1.....	1,377	12	932	668	1,343	60
11	Bridgeport.....	Bennett, No. 2.....	445	Kirkwood-2.....	1,343	30	899	601	1,343	70
				do.....	1,343	40	901	599	1,343	100
12	Ohio.....	Berkshire Lot, No. 1.....	444	do.....	1,338	40	901	599	1,343	60
13	Ohio.....	Berkshire, No. 1.....	432	do.....	1,309	34	866	605	1,363	100
14	Ohio.....	Berkshire, No. 4.....	437	do.....	1,352	39	886	618	1,359	50
15	Ohio.....	Berkshire, No. 5.....	437	do.....	1,352	39	886	618	1,359	50
16	Ohio.....	Berkshire, No. 3.....	457	do.....	1,352	39	886	618	1,359	50
17	Ohio.....	Berkshire, No. 6.....	441	do.....	1,352	39	886	618	1,359	50
18	Ohio.....	Berkshire, No. 7.....	416	do.....	1,352	39	886	618	1,359	50

## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated	Altitude below sea level—feet.	Altitude above datum plane—feet.				
19— S. W.	19	Ohio.....	Berkshire, No. 2.....	422 {	1,252	.....	840	660	.....	.....	.....	Gas, 1,265 feet.
	20	Ohio.....	Willey, No. 8.....	435 {	1,400	.....	978	522	.....	.....	.....	Salt water.
	21	Ohio.....	Willey, No. 2.....	434 {	1,324	10	889	611	1,324	1,444	135	Dry
	22	Ohio.....	Willey, No. 6.....	427 {	955	22	521	679	960	.....	70	Well abandoned.
	23	Ohio.....	Willey, No. 4.....	436 {	1,313	20	886	714	1,313	1,335	50	.....
	24	Ohio.....	Willey, No. 3.....	435 {	1,302	31	866	634	1,302	.....	130	.....
	25	Ohio.....	Willey, No. 7.....	441 {	902	22	467	1,033	907	.....	60	.....
	26	Ohio.....	Willey, No. 1.....	440 {	1,307	36	866	634	1,307	1,353	50	.....
	27	Ohio.....	Willey, No. 5.....	442 {	925	28	420	1,080	.....	.....	200	.....
	28	Ohio.....	Crump (40), No. 1.....	444 {	825	13	383	1,117	933	.....	75	Quit in sand.
S. E.	1	Silurian.....	Crump (40), No. 1.....	444 {	1,325	30	883	617	1,331	935	.....	Salt water, 936 feet.
	2	Silurian.....	Crump (40), No. 11.....	444 {	815	104	371	1,120	.....	.....	.....	Gas, 1,280 feet.
	3	Silurian.....	Crump (40), No. 13.....	445 {	1,200	4	786	714	.....	.....	.....	.....
	4	Silurian.....	Crump (40), No. 9.....	436 {	1,250	.....	806	664	.....	.....	150	.....
	5	Silurian.....	Crump (40), No. 17.....	440 {	1,301	44	857	643	1,313	1,347	150	.....
	6	Silurian.....	Crump (40), No. 16.....	440 {	917	20	472	1,028	909	.....	.....	.....
	7	Silurian.....	Crump (40), No. 6.....	432 {	904	34	468	1,032	.....	.....	.....	Salt water, 972 to 1,140 feet.
	8	Silurian.....	Crump (40), No. 15.....	426 {	1,252	33	420	1,080	.....	1,318	125	Red rock, 1,260 to 1,272 feet.
	9	Silurian.....	Crump (40), No. 16.....	440 {	865	30	425	1,075	.....	.....	.....	.....
	10	Silurian.....	Crump (40), No. 16.....	440 {	980	120	540	980	.....	.....	.....	Salt water.
78	78	Silurian.....	Crump (40), No. 6.....	432 {	1,281	31	541	659	.....	.....	.....	.....
	79	Silurian.....	Crump (40), No. 15.....	426 {	1,420	10	980	520	.....	.....	.....	Gas, 400 pounds rock pre-sure.
80	80	Silurian.....	Crump (40), No. 6.....	432 {	907	13	475	1,025	907	920	.....	.....
	81	Silurian.....	Crump (40), No. 15.....	426 {	877	19	451	1,040	807	807	100	.....





## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face ele-va-tion—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.	Name.				
22— S. E.	10 Ohio.		Dickerson, No. 1.	473	1,506	14	1,033	467	1,700	1,743	26	Drilling.	
	11 Ohio.		Dickerson, No. 2.	471	1,665	23	1,222	278				Salt water, 850 feet. Salt water, 1,010 feet. Salt water, 1,375 feet.	
22— N. E.	1 Snowden Bros.		Vanatia, No. 2.	430	800	50	370	1,120				Salt water and show of oil, 1,618 feet.	
			Bridgeport. do. Buchanan. Kirkwood-1. Kirkwood-2.	1,010 1,165 1,530 1,600	100 225 35 18	580 735 1,100 1,170	920 765 400 330						
24— N. E.			Tracy. McClosky.		1,740 1,945	25 1	1,310 1,515	190 -15	1,945	2,690	Dry	Light show of oil, 1,945 feet.	
	1 Ohio.		Perry King, No. 42.	434	1,307	28	873	627	1,307				
N. W.	2 Ohio.		Perry King, No. 17.	436	1,365	37	931	569	1,385	1,402	142		
	3 Ohio.		Perry King, No. 9.	451	1,319	99	883	617	1,362	1,418	40		
	4 Ohio.		Perry King, No. 8.	452	1,335	6	884	616	1,415		75		
	1 Ohio.		Perry King, No. 32.	433	1,415	24	944	536	1,415		75		
	2 Ohio.		Douglas, No. 2.	433	1,375	20	923	577	1,376	1,440	75		
	3 Ohio.		Douglas, No. 3.	438	1,497	20	1,064	436	1,497	1,549	100		
	4 Ohio.		Douglas, No. 1.	435	1,530	22	1,097	403	1,535		Gas well. No gas data.		
	5 Ohio.		Douglas, No. 10.	435	1,495	8	1,057	443			Gas		
	6 Ohio.		Perry King, No. 13.	429	1,665	12	1,000	410	1,665	1,679	30		
	7 Ohio.		Perry King, No. 45.	442	1,515	17	1,080	420	1,521	1,532	180		
				Perry King, No. 10.	435	1,449	6	1,014	486	1,449		Gas, 1,515 feet.	
				Perry King, No. 13.	429	1,500	17	1,065	435	1,500	150		

2 Ohio.....	Skiles, No. 8.....	433	"Gas".....	1,345	18	912	588	1,345	1,428	25	.....
3 Ohio.....	Skiles, No. 3.....	436	Kirkwood.....	1,392	24	956	544	1,392	1,418	45	.....
4 Ohio.....	Skiles, No. 5.....	437	Bridgeport.....	1,922	31	1,015	922	1,922	953	100	.....
5 Ohio.....	Skiles, No. 1.....	442	Kirkwood-1.....	1,294	4	852	648	.....	.....	30	.....
6 Ohio.....	Skiles, No. 6.....	447	Kirkwood-2.....	1,313	41	923	577	1,313	.....	100	.....
			Kirkwood-1.....	1,350	12	923	577	.....	.....	.....	.....
			Kirkwood-2.....	1,431	15	1,004	496	1,431	1,453	.....	.....
			Bridgeport.....	826	40	399	1,101	.....	.....	.....	.....
			do.....	871	59	444	1,056	.....	.....	.....	.....
			do.....	955	105	528	972	.....	.....	.....	.....
			do.....	1,080	5	653	847	.....	.....	.....	.....
			Buchanan.....	1,130	68	703	797	.....	.....	.....	.....
7 Bridgeport.....	M. Wood, No. 11.....	447	Stray.....	1,232	9	805	656	.....	.....	.....	.....
			"Gas".....	1,335	13	908	592	.....	.....	.....	.....
			Kirkwood-1.....	1,397	10	970	530	1,408	.....	.....	.....
			Kirkwood-2.....	1,433	17	1,006	494	1,445	.....	.....	.....
			Tracey.....	1,470	25	1,043	457	1,475	1,505	.....	.....
			Bridgeport.....	785	15	357	1,143	.....	.....	.....	.....
			do.....	840	10	412	1,088	.....	.....	.....	.....
			do.....	870	27	442	1,058	.....	.....	.....	.....
			do.....	930	113	502	998	.....	.....	.....	.....
			Buchanan.....	1,105	82	677	823	.....	.....	.....	.....
8 Bridgeport.....	M. Wood, No. 12.....	448	Stray.....	1,211	13	783	717	.....	.....	.....	.....
			Kirkwood-1.....	1,368	3	960	540	.....	.....	.....	.....
			Kirkwood-2.....	1,394	26	966	434	1,394	.....	.....	.....
			Stray.....	1,435	8	1,077	493	1,437	.....	.....	.....
			Tracey.....	1,462	28	1,034	466	1,462	1,498	.....	.....
9 Bridgeport.....	M. Wood, No. 7.....	430	Bridgeport.....	825	.....	390	1,110	.....	.....	.....	.....
			do.....	915	110	490	1,020	930	.....	.....	.....
			Buchanan.....	1,110	40	675	825	.....	.....	.....	.....
10 Bridgeport.....	M. Wood, No. 10.....	435	"Gas".....	1,285	18	850	650	.....	.....	.....	.....
			Kirkwood.....	1,333	72	898	602	1,340	1,408	.....	.....
			Kirkwood-1.....	1,312	15	872	638	.....	.....	.....	.....
			Kirkwood-2.....	1,329	13	889	611	.....	.....	.....	.....
			Kirkwood.....	1,296	51	857	643	.....	1,347	.....	.....
11 Bridgeport.....	M. Wood, No. 4.....	440	Kirkwood.....	1,279	54	849	651	1,352	1,841	.....	.....
12 Bridgeport.....	M. Wood, No. 5.....	439	Kirkwood.....	1,279	54	849	651	1,352	1,841	.....	.....
13 Bridgeport.....	M. Wood, No. 2.....	430	Kirkwood.....	1,279	54	849	651	1,352	1,841	.....	.....
14 Bridgeport.....	M. Wood, No. 9.....	428	Kirkwood.....	1,279	54	849	651	1,352	1,841	.....	.....
15 Bridgeport.....	M. Wood, No. 1.....	428	Kirkwood.....	1,279	54	849	651	1,352	1,841	.....	.....
16 Bridgeport.....	M. Wood, No. 3.....	422	Kirkwood.....	1,279	54	849	651	1,352	1,841	.....	.....
17 Bridgeport.....	M. Wood, No. 8.....	431	Stray.....	1,433	20	1,002	496	.....	1,459	.....	.....
18 Bridgeport.....	M. Wood, No. 6.....	435	Bridgeport.....	910	.....	475	1,025	.....	.....	.....	.....
			do.....	875	30	445	1,055	.....	940	.....	.....
			do.....	1,000	75	570	930	.....	.....	.....	.....
			Buchanan.....	1,130	100	700	800	.....	.....	.....	.....
			"Gas".....	1,275	19	845	655	.....	.....	.....	.....
			Kirkwood.....	1,390	10	950	550	.....	.....	.....	.....
			Tracey.....	1,580	15	1,160	340	.....	.....	.....	.....
			McClusky-1.....	1,670	12	1,240	290	.....	.....	.....	.....
			McClusky-2.....	1,698	7	1,298	232	.....	1,705	.....	.....
19 Bridgeport.....	M. Wood, No. 13.....	430	McClusky-2.....	1,698	7	1,298	232	.....	1,705	.....	.....



2 Ohio.....	Skiles, No. 8.....	1,345	15	912	588	1,345	1,428	25
3 Ohio.....	Skiles, No. 2.....	1,302	18	956	544	1,302	1,418	45
4 Ohio.....	Skiles, No. 3.....	1,922	31	485	1,015	1,922	983	100
5 Ohio.....	Skiles, No. 1.....	1,204	4	852	648			
6 Ohio.....	Skiles, No. 6.....	1,313	41	871	620	1,313		30
	Kirkwood-1.....	1,350	12	923	577			
	Kirkwood-2.....	1,350	12	923	577			
	Kirkwood-2.....	1,431	15	1,004	496	1,431		100
	Bridgeport.....	826	40	399	1,101			
	do.....	871	59	444	1,056			
	do.....	855	105	528	947			Salt water, 998 feet.
	do.....	1,080	5	653	847			Salt water.
	Buchanan.....	1,130	68	703	707			
7 Bridgeport.....	Stray.....	1,232	9	805	685			
	"Gas".....	1,335	13	908	592			
	Kirkwood-1.....	1,307	10	970	530	1,406		
	Kirkwood-2.....	1,433	17	1,006	404	1,445		
	Tracey.....	1,470	25	1,043	457	1,475		1,505
	Bridgeport.....	785	15	357	1,143			
	do.....	840	10	412	1,088			
	do.....	870	27	442	1,058			Salt water, 980 feet.
	do.....	930	113	502	998			Salt water, 1,148 feet.
8 Bridgeport.....	Buchanan.....	1,105	62	677	823			
	Stray.....	1,211	13	783	717			
	Kirkwood-1.....	1,368	3	960	540			
	Kirkwood-2.....	1,304	26	966	534	1,304		Show
	Stray.....	1,435	8	1,077	493	1,437		
	Tracey.....	1,462	28	1,034	496	1,462		1,498
9 Bridgeport.....	M. Wood, No. 7.....						No record.	Dry
	Bridgeport.....	825		390	1,110			
	do.....	915	110	490	1,020	930		Salt water, 985 feet.
	Buchanan.....	1,110	40	675	825			
10 Bridgeport.....	M. Wood, No. 10.....	1,285	18	850	650			
	"Gas".....	1,333	72	898	602	{ 1,340 } { 1,370 }	1,408	
	Kirkwood.....	1,312	15	872	628			Slate, 1,327 to 1,329 feet.
11 Bridgeport.....	M. Wood, No. 4.....	1,320	13	889	611			
12 Bridgeport.....	M. Wood, No. 5.....	1,206	51	857	643			
13 Bridgeport.....	M. Wood, No. 2.....						1,347	
14 Bridgeport.....	M. Wood, No. 9.....							No record.
15 Bridgeport.....	M. Wood, No. 1.....	1,279	54	849	651	1,352	1,841	No record.
16 Bridgeport.....	M. Wood, No. 3.....							do.
17 Bridgeport.....	M. Wood, No. 8.....	1,433	20	1,002	498		1,459	Rad rock, 1,300, 1,360 and 1,423 feet.
18 Bridgeport.....	M. Wood, No. 6.....	910		475	1,025		940	
	do.....	875	30	445	1,055			
	do.....	1,000	75	570	930			
	Buchanan.....	1,130	100	700	800			
	"Gas".....	1,275	19	845	655			
	Kirkwood.....	1,380	10	950	550			
	Tracey.....	1,590	15	1,160	340			
	McCluskey-1.....	1,670	12	1,240	290			
	McCluskey-2.....	1,698	7	1,268	232			Salt water.
19 Bridgeport.....	M. Wood, No. 13.....						1,705	

## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company	Name of well.	Sur- face ele- va- tion— feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
20— S. W.	1	Bridgeport.	Lewis, No. 9.	426	877	30	451	1,049	.....	933	250	Slate, 992 to 899 feet. Quit in sand.
	2	Bridgeport.	Lewis, No. 13.	426	915	18	489	1,014	.....	1,342	.....	Gas, 1,305 feet.
	3	Bridgeport.	Lewis, No. 1.	426	870	34	374	1,426	1,319	891	.....	.....
	4	Bridgeport.	Lewis, No. 12.	422	818	20	393	1,110	.....	.....	300	Salt water.
	5	Bridgeport.	Lewis, No. 4.	420	890	27	459	1,042	.....	.....	.....	.....
	6	Bridgeport.	Lewis, No. 3.	424	913	20	491	1,009	.....	.....	.....	.....
	7	Bridgeport.	Lewis, No. 20.	424	898	20	440	1,040	.....	.....	.....	.....
	8	Bridgeport.	Lewis, No. 19.	440	877	18	454	1,034	.....	.....	50	.....
	9	Bridgeport.	Lewis, No. 5.	440	877	12	449	1,029	1,326	1,396	250	Salt water, 1,070 feet.
	10	Bridgeport.	Lewis, No. 18.	410	894	25	410	1,090	.....	.....	.....	.....
	11	Bridgeport.	Lewis, No. 6.	440	877	25	477	1,023	.....	.....	.....	.....

[illegible]

## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
S. W..	31	E. N. Gillespie.	Smith, No. 23.	430	Bridgeport.	837	10	407	1,093		Show	Hole full of water, 837 feet
					do.	900	74	470	1,030			
					Kirkwood-1	1,378	40	948	552	1,378		
					Kirkwood-2	1,445	16	1,015	485	1,445	1,473	
					Bridgeport.	881	10	450	1,050	883		
					do.	915	32	474	1,026	920		
					Bridgeport.	875	20	434	1,066	881		No record
					do.	920	14	479	1,021	925	375	
					do.	880	12	449	1,051			
					do.	930	55	489	1,011	930		
	35	E. N. Gillespie.	Smith, No. 18.	441	Buchanan.	1,046	38	605	886		Show	Salt water, 1,090 feet.
					Kirkwood-1	1,342	2	901	599			Red shale, 1,325 feet.
					Kirkwood-2	1,360	33	919	581			
					Bridgeport.	887	21	436	1,064	890	1,477	
					do.	925	45	474	1,026			
					do.	884	12	433	1,067			
					do.	926	21	475	1,025			
					do.	933		502	598			
					Kirkwood.	1,332	56	881	619		282	Salt water, 963 and 1,140 feet.
					Bridgeport.	882	22	437	1,063	882		Red rock, 1,318 feet.
	38	E. N. Gillespie.	Smith, No. 9.	445	do.	912	69	467	1,033	912		
					"Gas"	1,250	18	805	965			Some gas, 1,250 feet.
					Kirkwood-1	1,290	32	845	865	1,305		
					Kirkwood-2	1,326	25	881	619			
					Bridgeport.	871	12	426	1,074	873	1,351	Red shale, 1,173 feet.
					do.	909	17	464	1,036	909		
					do.	885	12	440	890			
					Smith, No. 15.	909	73	464	1,036			
					do.	846	7	422	1,078	982		
					do.	900	34	458	1,044			
	41	E. N. Gillespie.	Smith, No. 5.	444	do.	846	7	422	1,078			
					do.	900	34	458	1,044			
					do.	846	7	422	1,078			
					do.	900	34	458	1,044			
					do.	846	7	422	1,078			
					do.	900	34	458	1,044			
					do.	846	7	422	1,078			
					do.	900	34	458	1,044			
					do.	846	7	422	1,078			
					do.	900	34	458	1,044			

5 Bridgeport.	Eshelman, No. 7.	440	Bridgeport.	886	80	455	1,045	900		Gas, 1,240 feet.
6 Bridgeport.	Eshelman, No. 8.	440	Kirkwood.	1,240	42	800	700	1,315	1,358	
7 Bridgeport.	Eshelman, No. 4.	433	Bridgeport.	1,288	42	808	642	910	931	
			do.	885	23	420	1,055	910	931	
			do.	832	23	420	1,080		932	
			do.	878		446	1,064			
			do.	860	120	422	1,078	870		
			do.					922		
8 Bridgeport.	Eshelman, No. 16.	438	Buchanan.	1,060	55	612	888			Salt water, 1,055 feet.
			Gas.	1,227	13	789	711			Gas, 1,227 feet.
			Kirkwood.	1,285	63	847	633	1,298	1,428	Red rock, 1,144, 1,210 and 1,273 feet.
9 Bridgeport.	Eshelman, No. 3.	438	Bridgeport.	892	24	424	1,076		940	
			do.	815	33	322	1,118			
			do.	868	57	435	1,065			
			do.	940	25	507	983			
			do.	1,010	13	577	923			
10 Bridgeport.	Eshelman, No. 17.	433	Buchanan.	1,068	52	625	875			Salt water, 1,065 feet.
			Stray.	1,135	20	702	796			
			Kirkwood.	1,297	63	864	636	1,310	1,399	Red rock, 1,157, 1,226, 1,287 feet.
11 Bridgeport.	Eshelman, No. 5.	433	do.	1,300	29	867	633	1,300	884	Well abandoned.
12 Bridgeport.	Eshelman, No. 1.	428	Bridgeport.	872	12	444	1,066			
			do.	850	15	330	1,120			
			do.	860	26	410	1,090			
			do.	896	45	453	1,045			
			do.	992	50	553	948			Salt water, 1,010 feet.
			do.	1,060	18	620	880			Salt water.
13 Bridgeport.	Eshelman, No. 18.	440	Buchanan.	1,100	45	660	840			
			Stray.	1,160	5	720	780			
			do.	1,175	8	735	765			Red rock, 1,200 and 1,334 feet.
			Kirkwood-1.	1,346	37	908	594	1,359		
			Kirkwood-2.	1,360	10	960	550	1,390	1,451	
14 Ohio.	Crackie, No. 19.	446	Kirkwood.	1,291	62	845	655	1,306	1,340	Wells 1 to 18 on the Crackie were purchased from Barnsdall in November, 1906.
15 Ohio.	Crackie, No. 18.	446	Stray.	1,321		875	625			
16 Ohio.	Crackie, No. 5.	446	Bridgeport.	898		422	1,073			
			do.	902	15	456	1,044		932	
17 Ohio.	Crackie, No. 1.	446	do.	870	15	421	1,079			
			do.	908	10	457	1,043			
			do.	845	20	381	1,099			
18 Ohio.	Crackie, No. 17.	454	do.	915	15	461	1,039			Salt water, 1,005 feet.
			do.	1,265		831	669		1,391	
19 Ohio.	Crackie, No. 4.	454	Kirkwood.	850	15	396	1,104			
			Bridgeport.	913	15	461	1,039		933	Salt water, 993 feet.
20 Ohio.	Crackie, No. 23.	455	do.	870	32	415	1,068	876	174	
			do.	885		430	1,070			Show
21 Ohio.	Crackie, No. 12.	455	do.	910	26	465	1,045		985	Slate, 917 to 922 feet.



## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
22—S. E..	10 Ohio.....	.....	Dickerson, No. 1.....	473	Kirkwood.....	1,506	14	1,033	467	.....	.....	.....	.....
	11 Ohio.....		Dickerson, No. 2.....	471	McClosky.....	1,665	23	1,222	278	1,700	1,743	25	Drilling.....
22—	.....	.....	.....	.....	Bridgeport.....	800	50	370	1,120	.....	.....	.....	Salt water, 850 feet.
					do.....	1,010	100	580	920	.....	.....	.....	Salt water, 1,010 feet.
N E..	1 Snowden Bros.....	.....	Vanatta, No. 2.....	430	Buchanan.....	1,165	225	735	765	.....	.....	.....	Salt water, 1,375 feet.
					Kirkwood-1.....	1,530	35	1,100	400	.....	.....	.....	Salt water and show of oil, 1,618 feet.
24—	.....	.....	.....	.....	Kirkwood-2.....	1,600	18	1,170	330	.....	.....	.....	.....
					Tracey.....	1,740	25	1,310	190	.....	.....	.....	.....
N E..	.....	.....	.....	.....	McClosky.....	1,946	.....	1,515	-15	1,946	2,590	.....	Dry Lightshow of oil, 1,945 feet.
					"Gas".....	1,307	28	873	627	1,307	.....	.....	.....
N W..	.....	.....	.....	.....	Stray.....	1,342	8	908	592	.....	.....	.....	.....
					Kirkwood.....	1,365	37	931	569	1,365	1,402	143	.....
N W..	.....	.....	.....	.....	"Gas".....	1,319	99	883	617	1,362	1,418	40	.....
					do.....	1,335	6	894	616	.....	.....	.....	.....
N W..	.....	.....	.....	.....	Kirkwood.....	1,415	24	904	536	1,415	.....	75	.....
					Kirkwood-1.....	1,375	20	923	577	1,375	.....	.....	.....
N W..	.....	.....	.....	.....	Kirkwood-2.....	1,435	15	983	517	1,440	.....	75	.....
					Kirkwood.....	1,467	20	1,004	436	1,467	1,540	75	.....
N W..	.....	.....	.....	.....	Kirkwood-1.....	1,502	20	1,099	431	1,508	.....	.....	.....
					Kirkwood-2.....	1,530	22	1,097	403	1,533	1,562	100	Gas well. No gas data.
N W..	.....	.....	.....	.....	Kirkwood-1.....	1,485	8	1,057	443	.....	.....	.....	.....
					Kirkwood-2.....	1,528	12	1,090	410	.....	.....	.....	.....
N W..	.....	.....	.....	.....	Tracey.....	1,665	14	1,227	273	1,665	1,679	80	Gas.
					"Gas".....	1,515	17	1,080	420	1,521	1,532	180	Gas, 1,515 feet.
N W..	.....	.....	.....	.....	Kirkwood.....	1,440	5	1,014	486	1,440	.....	.....	.....
					Perry King, No. 13.....	1,500	17	1,066	435	1,500	.....	.....	.....
N W..	.....	.....	.....	.....	do.....	1,513	22	1,064	416	1,513	.....	.....	.....
					Perry King, No. 45.....	1,516	23	1,074	426	1,516	1,560	120	Gas, 1,515 feet.

S. W.	1	Snowden Bros.	O. Judy, No. 1.	430	Bridgeport and Buchanan....	1,020	275	590	920			No record
					"Gas"	1,440	44	1,000	500			Hole full of water, 1,020 feet.
	2	Snowden Bros.	Childress, No. 3.	440	Kirkwood....	1,516	54	1,076	424	Show		
					Tracey	1,606	20	1,226	274	1,666		
					McClosky	1,776	7	1,336	164	1,788		Salt water, 1,781 feet.
	3	Snowden Bros.	Childress, No. 4.	455	Kirkwood....	1,506	41	1,048	452	1,553	160	Drilling
	4	Snowden Bros.	Childress, No. 5.	445	Kirkwood....	1,516	12	1,076	426			do.
S. E.	2	Ohio.	Perry King, No. 46.	458	Kirkwood....	1,684	8	1,248	267	1,687	30	do.
	3	Ohio.	Perry King, No. 47.	453	Kirkwood....	1,491	35	1,047	463	1,491	1,526	
	4	Ohio.	Perry King, No. 48.	450	do.	1,460	53	982	518	1,486	90	
	5	Ohio.	Perry King, No. 6.	441	"Gas"	1,354	46	871	629	1,454	1,500	
	6	Ohio.	Perry King, No. 7.	444	Kirkwood-1	1,470	8	968	507			T. 4 N., R. 13 W.
	7	Ohio.	Perry King, No. 16.	463	Kirkwood-2	1,404	7	1,017	483			
					Kirkwood-1	1,500	6	1,067	443	1,500	150	
					Kirkwood-2	1,527	3	1,064	416			
					Kirkwood	1,500		1,060	440		40	No record
	1	Snowden Bros.	Pepple, No. 2.	477	Bridgeport	854	11	269	1,101			
	2	Snowden Bros.	Pepple, No. 3.	443	do.	963	12	498	1,002			
	3	Snowden Bros.	Childress, No. 1.	440	do.	1,000	15	545	965			
	4	Snowden Bros.	Childress, No. 2.	450	Bridgeport and Buchanan....	1,035	151	590	920			Salt water, 1,035 and 1,163 feet.
					Buchanan	1,240	63	785	715			Salt water, 1,273 feet.
					"Gas"	1,433	17	978	522			
	5	Snowden Bros.	Pepple, No. 6.	455	Stray	1,488	6	1,033	467	1,494	Show	
					Kirkwood-1	1,502	15	1,047	453	1,517		
					Kirkwood-2	1,534	9	1,079	421			
					Kirkwood-3	1,588	5	1,133	367			
					Tracey	1,612	26	1,157	843			
					McClosky	1,684	39	1,229	271	1,648	150	
					Bridgeport	790	35	313	1,187			
					do.	990	15	513	987			
					do.	1,035	20	558	442			
					do.	1,115	25	638	682			
					do.	1,200	30	728	777			
					Buchanan-1	1,260	26	773	727			
					Buchanan-2	1,300	19	828	677			Hole full water, 1,315 feet
					Stray	1,365	17	878	622			
					"Gas"	1,445	10	968	532			
					Kirkwood-1	1,500	20	1,023	477	1,516		Water and oil, 1,438 feet.
					Kirkwood-2	1,580	37	1,031	447	1,567		
	6	Snowden Bros.	Pepple, No. 10.	477								

## Lawrence County—Petty Township—Continued

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
28— N. W.	22 Ohio.....		Crackle, No. 7.....	448	Bridgeport.	885	25	417	1,083	982	Show	
	23 Ohio.....		Crackle, No. 3.....	433	do.	907	10	426	1,041			
	24 Ohio.....		Crackle, No. 26.....	443	do.	898	55	472	1,075	15		
	25 Ohio.....		Crackle, No. 2.....	443	Kirkwood.	906	51	442	1,028	1,336	50	Gas, 1,285 feet.
	26 Ohio.....		Crackle, No. 6.....	449	Bridgeport.	1,265	9	424	1,076	983		Salt water, 983 feet.
	27 Ohio.....		Crackle, No. 28.....	453	do.	867	20	487	1,013			
	28 Ohio.....		Crackle, No. 24.....	455	do.	930	10	426	1,075			
	29 Ohio.....		Crackle, No. 13.....	457	do.	874	12	473	1,027			
	30 Ohio.....		Crackle, No. 10.....	473	do.	922	12	482	1,018	936		
	31 Ohio.....		Crackle, No. 20.....	472	Kirkwood.	835	68	462	1,044	1,338	85	
	32 Ohio.....		Crackle, No. 8.....	468	Bridgeport.	1,309	18	856	644	1,309	70	
	33 Silurian.....		Bowers, No. 4.....	455	do.	928	42	463	1,037	943		
	34 Silurian.....		Bowers, No. 5.....	455	do.	908	86	451	1,049	914		
	35 Silurian.....		Bowers, No. 6.....	458	do.	883	410	410	1,040		Show	
	36 Silurian.....		Bowers, No. 3.....	456	do.	924	12	451	1,049	1,009	Best	
					do.	1,005	4	532	988	1,336	Fair	
					do.	1,252	39	820	680	1,292	75	
					do.	822	10	440	1,060	999		
					do.	908	10	440	1,060			
					do.	840	10	385	1,115			
					do.	861	15	355	1,145			
					do.	810	15	355	1,145			
					do.	831	64	376	1,124			
					do.	931	52	476	1,024	968		Quit in sand. Well abandoned.
					do.	822	29	344	1,156		Show	
					do.	852	15	394	1,105	852		
					do.	906	34	448	1,052	906	50	
					do.	710	90	254	1,246	940		Salt water.
					do.	840	10	394	1,116	840		
					do.	961	10	525	975	961		

N. W.	5 Ohio.....	Johnson, No. 3.....	430	McClosky.....	1,642	18	1,212	288	1,642	1,664	200
	6 Ohio.....	E. Martin, No. 2.....	427	do.....	1,645	5	1,218	282	1,789	Dry	
	7 Ohio.....	J. C. Martin, No. 1.....	427	Tracey.....	1,476	45	1,049	451	1,321	Gas, 1,516 feet.	
	8 Ohio.....	J. C. Martin, No. 1.....	440	Tracey-2.....	1,580	10	1,140	360	1,642	Gas, 1,538 feet.	
	9 Ohio.....	J. C. Martin, No. 2.....	430	McClosky.....	1,640	12	1,210	280	1,681	Well abandoned.	
	10 Ohio.....	Gowin, No. 1.....	430	Tracey.....	1,500	10	1,070	430		Gas, 1,500 feet.	
	11 Ohio.....	Gowin, No. 1.....	440	McClosky.....	1,644	26	1,214	286	1,644	25	
	1 Mahutska.....	Gowin, No. 3.....	436	Tracey.....	1,649	13	1,209	291	1,655	Gas, 1,655 feet.	
	2 Ohio.....	Gowin, No. 1.....	436	McClosky.....	1,585	30	1,069	431	1,642	20	
	3 Ohio.....	Gowin, No. 2.....	438	do.....	1,637	27	1,201	269	1,647	50	
S. W.	3 Ohio.....	Green, No. 2.....	438	Tracey.....	1,634	18	1,196	304	1,634		
	4 Ohio.....	Green, No. 1.....	440	McClosky.....	1,565	20	1,067	433			
	4 Ohio.....	Green, No. 1.....	440	Tracey.....	1,625	25	1,187	313	1,625	100	
	1 Ohio.....	Nutall, No. 1.....	434	do.....	1,553	45	1,065	405	1,661	Dry	
	2 Ohio.....	Nutall, No. 2.....	433	McClosky.....	1,608	44	1,172	431	1,858		
	3 Ohio.....	Nutall, No. 2.....	433	Tracey.....	1,478	50	1,045	455	1,613	Gas, 1,506 feet.	
	4 Ohio.....	Nutall, No. 3.....	437	McClosky.....	1,601	46	1,103	453	1,635	Gas, 1,525 feet.	
	4 Ohio.....	Nutall, No. 4.....	437	Tracey.....	1,615	46	1,103	453	1,647	150	
	5 Ohio.....	Mefford, No. 1.....	438	do.....	1,510	22	1,073	322	1,615	Gas, 1,615 feet.	
	6 Mahutska.....	W. Updike, No. 6.....	438	do.....	1,512	23	1,074	426	1,582	Gas, 1,510 feet.	
S. E.	7 Mahutska.....	W. Updike, No. 6.....	438	do.....	1,478	37	1,040	460	1,540	Gas, 1,512 feet.	
	7 Mahutska.....	W. Updike, No. 1.....	438	McClosky.....	1,610	37	1,172	328	1,652	60	
	8 Mahutska.....	W. Updike, No. 1.....	438	Tracey.....	1,520	10	1,082	418		Gas, 1,520 feet.	
	8 Mahutska.....	W. Updike, No. 3.....	438	McClosky.....	1,617	16	1,179	321	1,670	50	
	9 Mahutska.....	W. Updike, No. 3.....	438	Tracey.....	1,507	32	1,099	431	1,652	20	
	9 Mahutska.....	W. Updike, No. 2.....	438	McClosky.....	1,616	32	1,178	322	1,654		
	9 Mahutska.....	W. Updike, No. 2.....	438	Tracey.....	1,465	32	1,053	445	1,645	1 Well abandoned.	
	10 Mahutska.....	W. Updike, No. 5.....	438	Tracey.....	1,507	8	1,099	431		50	
	10 Mahutska.....	W. Updike, No. 5.....	438	McClosky.....	1,603	45	1,105	355	1,656		
	11 Ohio.....	Mefford No. 2.....	438	Tracey.....	1,483	17	1,045	455	1,618	Gas, 1,483 to 1,500 feet.	
N. E.	2 Ohio.....	S. Updike (10), No. 1.....	429	do.....	1,613	17	1,173	325	1,636	75	
	2 Haywood.....	S. Updike, No. 1.....	428	do.....	1,622	48	1,183	307	1,670	60	
	3 Haywood.....	S. Updike, No. 3.....	428	do.....	1,618	13	1,190	310	1,657	75	
	4 Ohio.....	R. Shipman, No. 2.....	428	do.....	1,630	21	1,202	288	1,674	150	
	4 Ohio.....	R. Shipman, No. 2.....	428	do.....	1,637	23	1,209	291	1,632	30	
	5 Ohio.....	R. Shipman, No. 1.....	428	Tracey.....	1,498	27	1,088	432	1,680	Gas, 1,496 feet.	
	5 Ohio.....	R. Shipman, No. 1.....	428	McClosky.....	1,616	27	1,188	312	1,651	105	
	6 Ohio.....	Steffy, No. 1.....	428	Tracey.....	1,496	30	1,104	308	1,616	Gas, 1,496 feet.	
	7 Ohio.....	Steffy, No. 2.....	426	do.....	1,620	30	1,170	306	1,662	120	
	8 Ohio.....	Johnson, No. 4.....	432	do.....	1,630	30	1,204	296	1,696	50	
N. E.	8 Ohio.....	Johnson, No. 1.....	435	do.....	1,640	20	1,208	282	1,640	70	
	9 Ohio.....	Johnson, No. 5.....	430	do.....	1,645	25	1,210	280	1,682	150	
	10 Ohio.....	S. Updike, No. 4.....	428	do.....	1,645	16	1,202	288	1,648	Gas, 1,632 feet.	
	11 Haywood.....	S. Updike, No. 4.....	428	do.....	1,632	16	1,202	288	1,632	75	
	12 Haywood.....	S. Updike, No. 5.....	428	do.....	1,640	25	1,212	288	1,675	75	
	13 Haywood.....	S. Updike, No. 2.....	428	McClosky.....	1,630	31	1,201	299	1,731	Dry	
	1 Ohio.....	M. Coder, No. 1.....	437	Tracey.....	1,568	14	1,131	360	1,568	60 T. 5 N. R. 13, W.	
	2 Ohio.....	Kimmel, No. 1.....	437	do.....	1,572	18	1,135	365	1,406	Gas, 1,572 feet.	
	3 Ohio.....	Rodrick, No. 1.....	438	do.....	1,543	17	1,105	385	1,543	25	
	3 Ohio.....	Rodrick, No. 1.....	438	do.....	1,543	17	1,105	385	1,543	25	

## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
26— N. W. S. W.	1	Ohio.....	T. Smith, No. 1.....	438	1,578	22	1,141	359	1,578	1,600	85	No record
	1	Ohio.....	Armitage, No. 1.....	437	1,574	22	1,140	360	1,578	1,602	85	Gas, 1,585 feet.
	2	Ohio.....	Armitage, No. 2.....	434	1,574	30	1,065	435	1,586		35	Salt water
	3	Central Refining Co.....	G. Waggoner, No. 2.....	435	1,500	26	1,120	371	1,570	1,591		Red rock, 1,555 feet.
	4	Central Refining Co.....	G. Waggoner, No. 1.....	436	1,579	12	1,143	357	1,622	1,622		Salt water, 1,622 feet.
	5	Central Refining Co.....	Paddic, No. 1.....	436	1,630	10	1,194	306				Salt water.
S. E.	6	Central Refining Co.....	Paddic, No. 2.....	436	1,655	15	1,219	281				do.
	1	Ohio.....	Stray.....	436	1,550	25	1,114	396				do.
	2	Ohio.....	McClosky.....	437	1,594	11	1,148	353		1,653	177	Salt water, 1,598 feet.
	2	Ohio.....	Kettleman, No. 3.....	437	1,598	37	1,062	338	1,548	1,590	117	Gas, 1,548 feet.
	3	Ohio.....	Kettleman, No. 2.....	435	1,562	32	1,127	330	1,562	1,582	108	do.
	4	Ohio.....	Kettleman, No. 1.....	439	1,564	14	1,126	375	1,564	1,578	75	Gas, 1,557 feet.
29— N. E.	1	Slurian.....	Kettleman, No. 4.....	436	1,557	20	1,121	379	1,560	1,577	37	Gas, 1,557 feet.
	1	Slurian.....	Greenlee, No. 2.....	465	900	50	435	1,075				Salt water
	1	Slurian.....	Greenlee, No. 2.....	465	1,512	39	1,047	463	1,542		30	Gas, 1,542 feet. Red shale 1,566 feet.
	2	Ohio.....	Bridgeport.....	476	900	50	424	1,076				Red shale, 1,375 feet.
	2	Ohio.....	Greenlee, No. 1.....	476	1,528	52	447	453			40	Salt water, 1,375 feet.
	2	Ohio.....	Bridgeport.....	476	710	55	260	1,240				Broken sand, 955 to 1,915 feet. Salt water, 1,915 to 1,925 feet.
3	Bridgeport.....	Bridgeport.....	do.....	450	912	33	463	1,038				Salt water.
	3	Bridgeport.....	do.....	450	965	70	505	965				Salt water.
	3	Bridgeport.....	Eabelman, No. 14.....	450	1,040	33	500	910				Salt water.
	3	Bridgeport.....	Eabelman, No. 14.....	450	1,175	100	725	775				Salt water.
			Buchanan.....		1,300	10	850	650				Salt water.
			Kirkwood.....		1,468	37	1,018	482		1,512		Salt water.



## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
29— N. E..	14	Silurian.....	Dalrymple, No. 2.....	470	Bridgeport.....	890	20	410	1,000	.....	.....	.....	.....
					do.....	890	15	460	1,040	.....	.....	.....	.....
					do.....	870	30	500	1,000	.....	Show	Salt water.	
					do.....	1,030	30	500	940	.....	.....	Red rock, 1,260 feet.	
					"Gas".....	1,245	10	775	725	.....	.....	.....	
					do.....	1,302	15	832	668	.....	.....	.....	
					do.....	1,360	15	890	610	.....	.....	.....	
					Bridgeport.....	1,398	48	926	574	1,396	.....	Show	
					Kirkwood.....	1,730	30	243	257	.....	.....	.....	
					do.....	1,800	20	403	1,097	.....	.....	.....	
15	Silurian.....	Dalrymple, No. 4.....	487	Buchanan.....	1,160	60	693	837	.....	.....	Show	Salt water.	
				do.....	1,300	5	903	597	1,390	.....	.....	.....	
				Kirkwood-1.....	1,450	15	983	537	.....	.....	.....		
				Kirkwood-2.....	1,471	24	984	516	.....	.....	.....		
				Bridgeport.....	1,780	30	280	220	.....	1,519	50	Salt water.	
				do.....	1,985	20	485	1,015	.....	.....	.....		
				do.....	1,980	125	550	950	.....	.....	.....		
				do.....	1,390	145	730	770	.....	.....	.....		
				"Gas".....	1,442	8	942	558	1,442	.....	Show	Salt water, 1,050 feet.	
				Bridgeport.....	1,600	35	1,000	500	.....	1,550	130	Red rock, 1,360 feet.	
N. W..	1	Bridgeport.....	Eshelman, No. 11.....	428	do.....	900	59	474	926	920	.....	.....	Salt water, 970 feet.
					do.....	898	110	470	930	905	.....	.....	Red rock, 1,215 and 1,350 feet.
	2	Bridgeport.....	Eshelman, No. 9.....	428	"Gas".....	1,303	18	575	625	.....	.....	.....	.....
					Kirkwood.....	1,355	19	927	573	1,357	1,406	418	Broken sand, 1,374 to 1,406 feet.
	3	Bridgeport.....	Eshelman, No. 6.....	430	Bridgeport.....	923	39	463	1,037	.....	.....	.....	Salt water, 1,030 feet.
					Kirkwood.....	1,332	23	902	598	1,332	1,383	.....	Shale and red rock, 1,305 to 1,332 feet.
	4	Bridgeport.....	Eshelman, No. 2.....	440	Bridgeport.....	885	14	415	1,085	.....	.....	.....	.....
					do.....	885	6	445	1,055	.....	.....	.....	.....
					do.....	901	44	401	1,039	.....	940	.....	Quit in sand.

12	Bridgeport.....	455	Bridgeport.....	775	60	320	1,180					Broken sand, 775 to 826 feet.....
	Boyd No. 9.....		do.....	886	17	431	1,090					
	do.....		do.....	908	19	453	1,047					
13	Bridgeport.....	456	do.....	935	30	480	1,020	900				
	Boyd No. 4.....		do.....	808	25	352	1,148					Quit in salt water sand.....
	do.....		do.....	925		469	1,031	938	960			Salt water, 855 feet.....
14	Bridgeport.....	453	do.....	841	16	398	1,112					
	Baltzell No. 8.....		do.....	887	71	434	1,066	907				Salt water, 975 feet.....
	do.....		do.....	938	28	515	985					Salt water, 1,050 feet.....
	Buchanan.....		do.....	1,041		588	912	1,057				
15	Bridgeport.....	458	Bridgeport.....	878		420	1,080	900				Light
	Baltzell No. 3.....		do.....	925		467	1,033	925				Light
	do.....		do.....	955		507	983	935				
	do.....		do.....	918	14	453	1,047					
16	Bridgeport.....	465	do.....	956	25	491	1,009					Flowing well.....
	Baltzell No. 1.....		Buchanan.....	1,000	75	535	965					
	do.....		Bridgeport.....	800	20	328	1,178	800				Show
17	Bridgeport.....	472	do.....	840	40	368	1,132					
	Baltzell No. 12.....		do.....	885	105	413	1,067	900 { 948	965			Broken sand.....
	do.....		do.....	755	25	295	1,205					
18	Bridgeport.....	460	do.....	912	8	452	1,048	912	941			Drilling
19	Bridgeport.....	463	do.....									No record
20	Bridgeport.....	460	do.....									Show
	Baltzell No. 10.....		do.....	765	4	300	1,200	765				
	do.....		do.....	810	10	345	1,145					Light
	do.....		do.....	864	20	389	1,111					Best
	do.....		do.....	905	20	440	1,060	905				
	do.....		do.....	960	24	485	1,015	945	980			
	do.....		do.....	765	25	298	1,202	770				
	do.....		do.....	835	25	368	1,132					
	do.....		do.....	908	31	441	1,059	908				Gas, 958 feet.....
22	Bridgeport.....	467	do.....	952	53	485	1,015	958				
	Baltzell No. 11.....		Buchanan.....	1,102	18	634	865					Salt water
	do.....		Stray.....	1,170	27	703	797					Gas, 1,240 feet.....
	do.....		"Gas".....	1,240	8	773	727					Red rock, 1,300 feet.....
	Kirkwood.....		Kirkwood.....	1,314	33	847	653	1,318	1,365			
	Bridgeport.....		Bridgeport.....	815	323	323	1,177					
	do.....		do.....	850	87	358	1,142					Broken sand 850 to 904 and 914 to 930 feet.....
23	Bridgeport.....	492	do.....	991	29	499	1,001	1,000	1,020			Gas, 1,000 feet. Quit in white sand.....
	do.....		do.....	945	18	453	1,047	950				Light
	do.....		do.....	1,010	50	518	982					Gas, 1,015 feet. Salt water 1,060 feet.....
24	Bridgeport.....	492	Kirkwood.....	1,361	41	869	631	1,365				Red rock, 1,220 and 1,346 feet.....
	Baltzell No. 7.....		Tracy.....	1,510	10	1,018	482					Gas, 1,515 feet.....
	do.....		McClosky.....	1,575	20	1,083	417					Gas, 1,590 feet.....
25	Ohb.....	468	Bridgeport.....	794	40	326	1,174		900			Gas, 1,590 feet.....



## Lawrence County—Petty Township—Continued

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.				
20— N. W.			Crackle, No. 7.	448	Bridgeport.	865	25	417	1,083	982	Show	
			Crackle, No. 3.	438	do.	907	10	459	1,041			
			Crackle, No. 26.	438	do.	858	55	425	1,076		15	
			Crackle, No. 2.	443	Kirkwood.	905	51	471	1,028	1,336	50	Gas, 1,285 feet.
			Crackle, No. 6.	443	Bridgeport.	1,285	9	482	658			
			Crackle, No. 10.	448	do.	887	20	424	1,076	983		Salt water, 983 feet.
			Crackle, No. 28.	453	do.	920	12	427	1,013			
			Crackle, No. 24.	453	do.	874	10	425	1,076			
			Crackle, No. 13.	457	Kirkwood.	922	12	473	1,027	935		
			Crackle, No. 10.	473	Bridgeport.	935	69	482	1,018	1,309	85	
			Crackle, No. 20.	473	do.	1,309	18	486	644	1,087	70	
			Crackle, No. 8.	468	do.	928	42	451	1,049	914		
			Bowers, No. 4.	455	do.	908	86	463	1,090		Show	
			Bowers, No. 5.	455	do.	883	12	451	1,049	1,009	Best	
			Bowers, No. 6.	458	do.	924	4	451	968	1,336	Fair	
			Bowers, No. 3.	458	Kirkwood.	1,005	39	520	680		76	
			Bowers, No. 2.	458	Bridgeport.	1,292	29	532	1,146	999		
			Bowers, No. 1.	455	do.	822	10	440	1,090			
			Bowers, No. 4.	455	do.	908	10	440	1,090			
			Bowers, No. 5.	455	do.	840	10	385	1,115			
			Bowers, No. 6.	455	do.	981	15	526	974			
			Bowers, No. 7.	455	do.	810	15	355	1,145			
			Bowers, No. 8.	455	do.	881	64	376	1,124	983		Quit in sand. Well abandoned.
			Bowers, No. 9.	455	do.	931	52	476	1,024			
			Bowers, No. 10.	458	do.	802	29	344	1,156		Show	
			Bowers, No. 11.	458	do.	852	15	394	1,105	852		
			Bowers, No. 12.	458	do.	905	34	448	1,052	940	50	
			Bowers, No. 13.	458	do.	710	90	234	1,246			
			Bowers, No. 14.	458	do.	840	10	384	1,116	940		Salt water.
			Bowers, No. 15.	458	do.	981		321	978	981		

12	Bridgeport.	Boyd, No. 9.	455	Bridgeport.	775	60	320	1,180	.....	.....	.....	.....	Broken sand, 775 to 825 feet.
	do.	.....	886	do.	886	19	431	1,099	.....	.....	.....	.....	.....
	do.	.....	908	do.	908	17	433	1,047	.....	.....	.....	.....	.....
	do.	.....	935	do.	935	30	490	1,020	950	.....	.....	.....	.....
13	Bridgeport.	Boyd, No. 4.	456	do.	925	25	352	1,148	.....	.....	.....	.....	Quit in salt water sand.
	do.	.....	925	do.	941	16	469	1,031	988	950	.....	.....	Salt water, 855 feet.
	do.	.....	887	do.	943	28	434	1,066	907	.....	.....	.....	.....
14	Bridgeport.	Baltzell, No. 8.	453	do.	1,041	.....	515	985	.....	.....	.....	.....	Salt water, 975 feet.
	do.	.....	878	Buchanan.	878	.....	588	912	1,057	.....	.....	.....	Salt water, 1,050 feet.
	do.	.....	925	Bridgeport.	925	.....	420	1,080	900	.....	.....	.....	.....
	do.	.....	945	do.	945	.....	467	1,033	925	Light	.....	.....	.....
	do.	.....	918	do.	918	14	453	1,047	965	Light	.....	.....	.....
15	Bridgeport.	Baltzell, No. 3.	458	do.	956	25	491	1,009	.....	.....	.....	.....	.....
	do.	.....	1,000	Buchanan.	1,000	75	535	995	.....	.....	.....	.....	Flowing well.
	do.	.....	800	Bridgeport.	800	20	328	1,172	800	Show	.....	.....	.....
	do.	.....	840	do.	840	40	368	1,132	.....	.....	.....	.....	.....
16	Bridgeport.	Baltzell, No. 1.	465	do.	885	105	413	1,087	900	.....	.....	.....	Broken sand.
	do.	.....	755	do.	755	25	295	1,205	945	.....	.....	.....	.....
	do.	.....	912	do.	912	8	452	1,048	912	941	160	.....	Drilling.
17	Bridgeport.	Baltzell, No. 12.	472	do.	765	.....	.....	.....	.....	.....	.....	.....	No record.
	do.	.....	810	do.	810	4	300	1,200	765	.....	.....	.....	.....
	do.	.....	854	do.	854	10	345	1,145	.....	.....	.....	.....	Show
	do.	.....	905	do.	905	20	380	1,111	.....	.....	.....	.....	.....
	do.	.....	960	do.	960	24	485	1,015	905	.....	.....	.....	Light
	do.	.....	765	do.	765	26	298	1,202	965	980	.....	.....	Best
	do.	.....	835	do.	835	26	368	1,132	770	.....	.....	.....	.....
	do.	.....	908	do.	908	31	441	1,059	908	.....	.....	.....	.....
	do.	.....	932	do.	932	33	485	1,015	958	.....	.....	.....	Gas, 958 feet.
22	Bridgeport.	Baltzell, No. 11.	487	Buchanan.	932	18	638	895	.....	.....	.....	.....	.....
	do.	.....	1,102	Stray.	1,102	27	703	797	.....	.....	.....	.....	Salt water.
	do.	.....	1,170	"Gas".	1,170	8	773	727	.....	.....	.....	.....	Gas, 1,240 feet.
	do.	.....	1,240	Kirkwood.	1,240	33	847	653	1,318	1,365	.....	.....	Red rock, 1,200 feet.
	do.	.....	815	Bridgeport.	815	5	323	1,177	.....	.....	.....	.....	.....
	do.	.....	850	do.	850	87	358	1,142	.....	.....	.....	.....	Broken sand 850 to 904 and 914 to 930 feet. Quit in white sand.
23	Bridgeport.	Baltzell, No. 9.	492	do.	991	29	499	1,001	1,000	1,020	.....	.....	.....
	do.	.....	945	do.	945	18	453	1,047	950	.....	.....	.....	Gas, 1,015 feet. Salt water
	do.	.....	1,010	do.	1,010	50	518	982	.....	.....	.....	.....	1,060 feet.
24	Bridgeport.	Baltzell, No. 7.	492	Kirkwood.	1,361	41	899	631	1,365	.....	.....	.....	Red rock, 1,220 and 1,346 feet.
	do.	.....	1,510	Tracey.	1,510	10	1,018	482	.....	.....	.....	.....	Gas, 1,515 feet.
	do.	.....	1,575	McClusky.	1,575	20	1,083	417	1,568	.....	.....	.....	Gas, 1,590 feet.
25	Ohio.	Crackle, No. 14.	498	Bridgeport.	794	40	326	1,174	990	.....	.....	.....	.....

## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
30—N. E..	26	Ohio.	Crackie, No. 29.	468	Bridgeport.	935	70	467	1,033	1,291	250	
					Kirkwood.	1,291	46	523	677	1,407		
	27	Ohio.	Crackie, No. 30.	466	Tracy.	1,404	75	536	804	1,428		
					Bridgeport.	932	15	536	1,034			
	28	Ohio.	Crackie, No. 16.	470	Kirkwood.	1,311	21	545	655	1,311	90	
					Tracy.	1,352	12	526	874	1,392		
	29	Ohio.	Crackie, No. 21.	469	Bridgeport.	908	6	438	1,002			
					do.	930	9	460	1,040			
	30	Ohio.	Crackie, No. 11.	468	do.	904	37	494	1,006	1,004		
					Kirkwood.	1,285	125	526	674	1,285	70	
N. W..	31	Ohio.	Crackie, No. 25.	468	Bridgeport.	928	36	470	1,089	1,337		
					do.	899	10	416	1,084	1,007		
	32	Ohio.	Crackie, No. 9.	453	do.	815	13	462	1,038	974	70	
					do.	835	30	432	1,018			
	33	Ohio.	Crackie, No. 22.	440	do.	871	30	431	1,069	885		
					do.	897	13	358	1,142	875	5	Produced salt water the first day.
	34	Ohio.	Crackie, No. 15.	449	do.	915	2	466	1,031			
					do.	945	20	496	1,004	995		
	35	Ohio.	Crackie, No. 27.	464	do.	914	25	496	1,004	920	30	
					do.	860	23	371	1,004	970		
N. W..	1	Bridgeport.	Boyd, No. 6.	439	do.	810	71	371	1,029	921		
					Kirkwood.	1,290	58	531	1,029	1,295		
	2	Bridgeport.	Boyd, No. 3.	436	Bridgeport.	893	8	374	1,033	1,341		
					do.	883	30	447	1,033	908	40	Salt water, 981 feet. Red rock, 1,277 feet.
	3	Bridgeport.	Boyd, No. 8.	439	do.	800		341	1,033	940		
					do.	800		341	1,033	920		
N. W..	4	Bridgeport.	Boyd, No. 1.	433	do.	1,317	46	573	622	1,367		
					do.	1,338	5	906	590	1,343		

S. E.		Lewis, No. 22	534	Kirkwood	1,399	17	855	645	1,398	1,408	100	
19 Ohio		Lewis, No. 22	534	Kirkwood	1,399	17	855	645	1,398	1,408	100	
20 Ohio		Lewis, No. 5	533	Bridgeport	887	55	354	1,146	912		50	Salt water, 1,049 feet.
21 Ohio		Lewis, No. 20	508	"Gas"	1,036	10	503	997				Gas, 1,303 feet.
22 Ohio		Lewis, No. 3	508	Kirkwood	1,365	31	795	705			70	
		Lewis, No. 3	508	Bridgeport	811	16	303	643	1,365	1,401		
		Lewis, No. 3	508	Bridgeport	870	16	303	1,197				Salt water, 873 feet. Well abandoned.
1 Silurian		Neal No. 1	498	"Gas"	1,270	47	772	728	1,270		Gas	Gas, 1,270 feet. Red rock, 1,220 feet.
2 Silurian		Neal No. 4	504	Bridgeport	885	10	381	1,119			50	
3 Silurian		Neal No. 8	490	"do."	1,015	25	511	989	1,055			Quit in sand.
		Neal No. 8	490	"do."	987	34	497	1,003	992	1,021	70	Show Salt water, 905 feet.
		Neal No. 8	490	"do."	750	155	248	1,252	885			
		Neal No. 8	490	"do."	1,020	35	518	982				
4 Silurian		Neal No. 7	502	Buchanan	1,175	55	678	827				
		Neal No. 7	502	"Gas"	1,362	8	890	640	1,362			
		Neal No. 7	502	Kirkwood-1	1,460	20	968	542	1,460			
		Neal No. 7	502	Kirkwood-2	1,506	18	1,004	496	1,506	1,526	180	
		Neal No. 7	502	Bridgeport	760	240	1,270	1,230	780			
5 Silurian		Neal No. 6	490	Bridgeport and Buchanan	1,100	100	610	890				
		Neal No. 6	490	"Gas"	1,350	25	890	640	1,350			
		Neal No. 6	490	Kirkwood	1,420	40	930	570	1,420	1,492	225	
		Neal No. 6	490	Bridgeport	920	20	431	1,069				Salt water.
		Neal No. 6	490	Buchanan	1,220	20	731	769				do.
6 Silurian		Neal No. 5	488	Stray	1,265	10	806	604	1,385		Show	
		Neal No. 5	488	"Gas"	1,385	5	896	604	1,385		110	Quit in sand.
		Neal No. 5	488	Kirkwood	1,442	50	953	547		1,492		
		Neal No. 5	488	Stray	1,291	8	824	776				
7 Silurian		Neal No. 2	467	"Gas"	1,330	8	863	637	1,335	1,390		
		Neal No. 2	467	Bridgeport	975	15	518	982				Salt water.
		Neal No. 2	467	"do."	1,130	25	673	827				
8 Silurian		Neal No. 3	457	Buchanan	1,190	103	733	767				Red rock, 1,300 feet.
		Neal No. 3	457	"Gas"	1,305	20	848	652	1,305			
		Neal No. 3	457	Kirkwood	1,376	24	919	581	1,376			
		Neal No. 3	457	Tracey	1,435	15	978	522	1,435		50	
9 Ohio		Middaugh, No. 4	508	Kirkwood	1,490	27	982	618	1,490	1,517		
10 Ohio		Middaugh, No. 6	522	"Gas"	1,435	8	913	587			75	
		Middaugh, No. 6	522	Kirkwood	1,505	20	983	517	1,505	1,528		
		Middaugh, No. 6	522	"Gas"	1,410	30	892	606				
11 Ohio		Middaugh, No. 7	518	Kirkwood	1,540	18	1,022	478	1,540	1,579	140	
12 Ohio		Middaugh, No. 5	492	Bridgeport	1,007	27	615	985	1,015	1,034	125	
		Middaugh, No. 5	492	"Gas"	1,460	18	944	556				
13 Ohio		Middaugh, No. 3	516	Kirkwood	1,525	29	1,009	491	1,525	1,554	50	
14 Ohio		Middaugh, No. 8	503	"do."	1,517	32	1,014	486	1,517	1,586	150	
15 Ohio		Middaugh, No. 2	483	do.	1,507	30	961	486	1,528	1,539	60	
		Middaugh, No. 2	483	Bridgeport	852	18	361	1,139				
		Middaugh, No. 2	483	do.	874	36	383	1,117	874		200	
16 Ohio		Middaugh, No. 1	491	Kirkwood	1,522	21	1,031	1,469	1,522	1,543		

## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
30— N. E..	1	Bridgeport.....	Miller, No. 4.....	454	Bridgeport.....	864	62	410	1,090	.....	.....	Slata, 894 to 896 feet.
	2	Bridgeport.....	Miller, No. 8.....	453	"Gas".....	940	24	486	1,014	964	.....	250 T. 4, N. R. 13 W.
	3	Bridgeport.....	Miller, No. 5.....	453	Kirkwood.....	1,216	9	763	737	.....	.....	Red rock, 1,355 feet.
	4	Bridgeport.....	Miller, No. 13.....	448	Bridgeport.....	1,288	35	832	668	1,344	250	.....
	5	Bridgeport.....	Miller, No. 6.....	448	"do".....	927	15	474	1,026	968	.....	.....
	6	Bridgeport.....	Miller, No. 14.....	440	"do".....	830	19	322	1,118	.....	.....	.....
	7	Bridgeport.....	Miller, No. 12.....	437	"do".....	871	19	423	1,017	910	.....	.....
	8	Bridgeport.....	Boyd, No. 12.....	440	"do".....	865	50	447	1,053	960	.....	.....
	9	Bridgeport.....	Boyd, No. 11.....	452	"do".....	955	5	507	983	.....	.....	.....
	10	Bridgeport.....	Boyd, No. 5.....	450	"Gas".....	937	30	488	1,012	1,313	80	30,000 barrels oil from this well in 2 years.
	11	Bridgeport.....	Boyd, No. 2.....	451	Bridgeport.....	1,200	5	751	749	.....	.....	Gas, 1,200 feet.
					Bridgeport.....	803	12	383	1,137	.....	.....	Broken sand, 935 to 945 feet.
					"do".....	850	115	410	1,090	860	.....	.....
					"do".....	835	20	398	1,102	842	.....	.....
					"do".....	870	20	433	1,067	876	.....	.....
					"do".....	930	21	493	1,007	961	.....	.....
					"do".....	825	6	385	1,115	835	Show	.....
					"do".....	870	48	430	1,070	880	Show	Broken sand, 885 to 915 feet.
					"do".....	928	.....	488	1,012	928	.....	.....
					"do".....	945	20	505	995	945	.....	.....
					"do".....	830	13	378	1,122	.....	.....	.....
					"do".....	876	76	424	1,076	935	932	Quit in sand.
					"do".....	829	61	379	1,121	.....	.....	Salt water, 846 feet.
					"do".....	920	35	470	1,090	.....	.....	Salt water, 860 to 1,030 feet.
					"Gas".....	1,240	.....	700	710	.....	.....	.....
					Kirkwood.....	1,203	41	533	647	1,305	125	.....
					Bridgeport.....	877	.....	426	1,074	1,352	.....	.....
					"do".....	936	51	484	1,018	956	.....	.....

[illegible]

## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
30— N. E.	26	Ohio.....	Crackie, No. 29.....	468.....	Bridgeport.....	935.....	70.....	467.....	1,033.....	.....	.....	.....	.....
					Kirkwood.....	1,201.....	46.....	823.....	677.....	1,201.....	.....	.....	.....
					Tracey.....	1,404.....	12.....	936.....	564.....	1,407.....	.....	250.....	.....
					Bridgeport.....	1,032.....	75.....	466.....	1,034.....	.....	1,428.....	.....	.....
					Kirkwood.....	1,311.....	15.....	845.....	655.....	1,311.....	.....	.....	.....
	27	Ohio.....	Crackie, No. 30.....	466.....	Tracey.....	1,392.....	21.....	926.....	574.....	1,392.....	.....	90.....	.....
					Bridgeport.....	936.....	12.....	438.....	1,062.....	.....	1,419.....	.....	.....
					do.....	830.....	6.....	460.....	1,040.....	.....	.....	.....	.....
					do.....	864.....	9.....	494.....	1,006.....	.....	1,004.....	.....	.....
					Crackie, No. 21.....	1,295.....	37.....	826.....	674.....	1,295.....	.....	70.....	.....
N. W.	1	Bridgeport.....	Crackie, No. 11.....	469.....	Bridgeport.....	1,870.....	125.....	401.....	1,090.....	970.....	1,007.....	.....	.....
					Crackie, No. 25.....	928.....	86.....	470.....	1,030.....	930.....	974.....	70.....	.....
					do.....	869.....	.....	416.....	1,084.....	.....	.....	.....	.....
					Crackie, No. 9.....	915.....	10.....	462.....	1,038.....	.....	.....	.....	.....
					do.....	835.....	13.....	482.....	1,018.....	.....	985.....	.....	.....
	2	Bridgeport.....	Crackie, No. 22.....	440.....	do.....	871.....	30.....	431.....	1,069.....	875.....	901.....	5.....	Produced salt water the first day.....
					do.....	807.....	13.....	358.....	1,142.....	.....	.....	.....	.....
					do.....	918.....	2.....	499.....	1,031.....	.....	.....	.....	.....
					do.....	945.....	20.....	496.....	1,004.....	.....	985.....	.....	.....
					do.....	814.....	14.....	450.....	1,050.....	920.....	.....	.....	.....
N. W.	3	Bridgeport.....	Crackie, No. 27.....	464.....	do.....	960.....	25.....	496.....	1,004.....	970.....	985.....	30.....	.....
					do.....	810.....	43.....	371.....	1,126.....	.....	.....	.....	.....
					do.....	910.....	71.....	471.....	1,026.....	921.....	.....	.....	.....
					do.....	1,200.....	33.....	851.....	649.....	1,268.....	1,341.....	.....	Salt water, 981 feet.
					do.....	810.....	3.....	374.....	1,126.....	.....	.....	.....	Red rock, 1,277 feet.
	4	Bridgeport.....	Boyd, No. 3.....	436.....	Bridgeport.....	883.....	30.....	351.....	1,063.....	963.....	940.....	40.....	.....
					do.....	800.....	.....	361.....	1,139.....	.....	.....	.....	.....
					do.....	910.....	.....	471.....	1,026.....	920.....	.....	.....	.....
					do.....	1,317.....	40.....	878.....	1,022.....	.....	1,367.....	.....	.....
					do.....	1,338.....	5.....	906.....	995.....	.....	1,318.....	.....	.....

15	Bridgeport.....	Whipsky, No. 3.....	466	Bridgeport.....	Kirkwood-1.....	1,448	915	53	449	1,019	940	.....	Salt water, 905 feet.
					Kirkwood-2.....	1,460	22	982	518	.....	.....	.....	.....
					Tracey-1.....	1,560	20	1,004	506	.....	.....	.....	Light
					Tracey-2.....	1,585	33	1,119	381	.....	1,664	.....	Gas, 1,685 feet.
16	Bridgeport.....	Whipsky, No. 1.....	486	.....	Kirkwood.....	1,496	.....	1,009	491	.....	1,519	.....	25 Salt water, 1,135 and 1,528 feet.
					"Gas".....	1,380	.....	914	586	.....	1,384	.....	.....
					Kirkwood-1.....	1,460	30	994	506	.....	1,463	.....	Light
					Kirkwood-2.....	1,496	10	1,029	471	.....	.....	.....	Gas, 1,694 feet.
17	Bridgeport.....	Whipsky, No. 2.....	466	.....	Tracey.....	1,594	28	1,128	472	.....	1,600	.....	.....
					McClosky.....	1,679	121	1,213	287	.....	1,683	1800	Salt water, 1,750 feet.
					Kirkwood.....	1,462	41	976	524	.....	1,724	.....	.....
18	Ohio.....	Madding, No. 8.....	486	.....	Tracey.....	1,583	.....	1,107	383	.....	1,684	.....	Gas, 1,693 feet.
					McClosky.....	1,683	9	1,197	303	.....	1,692	.....	150
19	Ohio.....	Madding, No. 9.....	464	.....	Tracey.....	1,589	33	1,125	375	.....	.....	.....	.....
					McClosky.....	1,672	12	1,208	292	.....	1,672	.....	285 Gas, 1,675 feet.
					Bridgeport.....	837	5	318	183	.....	.....	.....	.....
1	Pemberton.....	Pemberton, No. 4.....	519	.....	do.....	937	10	418	1,082	.....	970	.....	150 Well abandoned.
					do.....	970	27	451	1,049	.....	970	.....	.....
2	Pemberton.....	Pemberton, No. 15.....	518	.....	do.....	950	75	432	1,068	.....	.....	.....	.....
					do.....	970	35	451	1,049	.....	.....	.....	.....
3	Pemberton.....	Pemberton, No. 8.....	519	.....	do.....	1,050	.....	531	969	.....	.....	.....	Salt water, 1,050 feet.
					Kirkwood.....	1,426	.....	906	594	.....	1,489	.....	.....
					Bridgeport.....	834	15	304	1,196	.....	.....	.....	.....
4	Pemberton.....	Pemberton, No. 3.....	530	.....	do.....	894	20	364	1,136	.....	.....	.....	.....
					do.....	917	20	387	1,113	.....	.....	.....	.....
					do.....	977	20	447	1,053	.....	.....	.....	.....
					do.....	868	27	328	1,172	.....	.....	.....	.....
					do.....	1,010	12	480	920	.....	.....	.....	150 Salt water, 997 to 1,017 feet.
5	Pemberton.....	Pemberton, No. 7.....	530	.....	Buchanan.....	1,006	115	565	935	.....	.....	.....	.....
					"Gas".....	1,345	.....	815	685	.....	.....	.....	.....
					Kirkwood.....	1,421	41	891	609	.....	1,472	.....	.....
					Bridgeport.....	836	11	299	1,201	.....	.....	.....	.....
6	Pemberton.....	Pemberton, No. 1.....	537	.....	do.....	831	15	394	1,106	.....	.....	.....	.....
					do.....	967	26	430	1,070	.....	.....	.....	.....
					do.....	998	11	461	1,089	.....	.....	.....	.....
					do.....	866	26	329	1,171	.....	.....	.....	250 Well abandoned.
					do.....	905	44	368	1,132	.....	.....	.....	.....
					do.....	1,035	40	498	1,002	.....	.....	.....	.....
7	Pemberton.....	Pemberton, No. 6.....	537	.....	"Gas".....	1,330	23	763	707	.....	.....	.....	Salt water.
					do.....	1,330	.....	.....	.....	.....	.....	.....	Red rock, 1,250 and 1,280 feet.
					Kirkwood.....	1,391	34	854	646	.....	1,425	.....	.....
8	Pemberton.....	Pemberton, No. 16.....	537	.....	Bridgeport.....	904	46	367	1,133	.....	925	.....	.....
					do.....	972	37	435	1,065	.....	1,009	.....	.....
					do.....	820	15	300	1,200	.....	.....	.....	.....
					do.....	903	18	383	1,117	.....	.....	.....	.....
					do.....	959	.....	439	1,016	.....	.....	.....	.....
9	Pemberton.....	Pemberton, No. 2.....	520	.....	do.....	964	20	464	1,036	.....	.....	.....	150

S. E....



## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
30—S. E....	10	Pemberton.....	Pemberton, No. 19.....	520	Bridgeport.....	950	80	430	1,070	970	.....	.....	.....
					"Gas".....	1,243	10	773	727	.....	.....	.....	.....
					Kirkwood.....	1,343	62	823	677	.....	.....	.....	Red rock, 1,333 feet.
					Stray.....	1,434	14	914	598	.....	.....	.....	.....
					Tracy.....	1,501	18	981	519	.....	1,519	.....	.....
	11	Pemberton.....	Pemberton, No. 14.....	513	Bridgeport.....	940	75	427	1,073	.....	.....	.....	.....
					"Gas".....	1,295	47	752	618	.....	.....	.....	Salt water, 1,015 feet.
					Kirkwood.....	1,335	47	822	678	.....	1,382	.....	.....
					"Gas".....	1,300	.....	787	713	.....	.....	.....	.....
					Kirkwood.....	1,357	49	844	656	.....	1,406	.....	.....
	12	Pemberton.....	Pemberton, No. 13.....	513	.....	.....	.....	.....	.....	.....	.....	.....	No record.
					.....	.....	.....	.....	.....	.....	.....	.....	do.
					.....	.....	.....	.....	.....	.....	.....	.....	.....
					.....	.....	.....	.....	.....	.....	.....	.....	.....
					.....	.....	.....	.....	.....	.....	.....	.....	.....
30—S. E....	13	Pemberton.....	Pemberton, No. 18.....	505	Bridgeport.....	925	80	405	1,095	975	.....	.....	.....
					Kirkwood-1.....	1,350	640	860	640	.....	.....	.....	.....
					Kirkwood-2.....	1,383	55	873	627	.....	1,438	.....	.....
					Bridgeport.....	804	.....	284	1,216	.....	.....	.....	.....
					do.....	918	92	398	1,102	980	.....	.....	.....
	16	Pemberton.....	Pemberton, No. 11.....	520	Buchanan.....	1,080	.....	560	940	.....	.....	.....	.....
					Kirkwood-1.....	1,383	13	865	635	.....	.....	.....	.....
					Kirkwood-2.....	1,408	38	888	612	1,410	.....	.....	.....
					.....	.....	.....	.....	.....	.....	.....	.....	No record.
					.....	.....	.....	.....	.....	.....	.....	.....	.....
30—S. E....	17	Pemberton.....	Pemberton, No. 17.....	520	Kirkwood.....	1,404	45	884	618	1,429	1,499	.....	.....
					Bridgeport.....	806	4	284	1,216	.....	.....	.....	.....
					.....	928	24	404	1,096	.....	.....	.....	.....
					do.....	955	53	433	1,087	.....	1,008	150	.....
					do.....	810	30	293	1,207	.....	.....	.....	.....
	20	Bridgeport.....	Willey, No. 6.....	517	do.....	900	45	383	1,117	925	.....	.....	.....
					do.....	960	40	443	1,057	965	.....	.....	.....
					Buchanan-1.....	1,063	42	546	854	.....	.....	.....	Salt water.
					Buchanan-2.....	1,107	95	590	910	.....	.....	.....	.....
					"Gas".....	1,320	10	803	697	.....	.....	.....	.....
					Kirkwood.....	1,402	32	885	615	1,405	1,437	.....	.....

15	Bridgeport.	Whipsky, No. 3.	466	Bridgeport.	915	55	449	1,019	940			Salt water, 945 feet.
	Kirkwood-1.			Kirkwood-1.	1,448	4	982	506	1,465			
	Kirkwood-2.			Kirkwood-2.	1,460	22	994	506	1,465			Light
	Tracey-1.			Tracey-1.	1,504	20	1,094	406	1,560			
	Tracey-2.			Tracey-2.	1,585	33	1,119	331	1,611	1,664		Gas, 1,685 feet.
16	Bridgeport.	Whipsky, No. 1.	486	Kirkwood.	1,486		1,009	401	1,519			26 Salt water, 1,135 and 1,528 feet.
	"Gas".			"Gas".	1,390							
	Kirkwood-1.			Kirkwood-1.	1,400	30	994	506	1,463			Light
	Kirkwood-2.			Kirkwood-2.	1,495	10	1,029	471	1,483			
17	Bridgeport.	Whipsky, No. 2.	466	Tracey.	1,594	28	1,128	472	1,600			Gas, 1,694 feet.
	Tracey.			Tracey.	1,594							
	McClosky.			McClosky.	1,679	121	1,213	267	1,683	1,800		Salt water, 1,750 feet.
18	Ohio.	Madding, No. 8.	486	Kirkwood.	1,462	41	976	524				
	McClosky.			McClosky.	1,583		1,107	393				Gas, 1,563 feet.
	Tracey.			Tracey.	1,683	9	1,197	303	1,684	1,662		150
19	Ohio.	Madding, No. 9.	464	Tracey.	1,589	33	1,125	375				
	McClosky.			McClosky.	1,672	12	1,208	292	1,672	1,735		286
1	Pemberton.	Pemberton, No. 4.	519	Bridgeport.	837	5	518	1,522				Gas, 1,675 feet.
	do.			do.	870	10	418	1,062				
2	Pemberton.	Pemberton, No. 15.	518	do.	970	27	461	1,049	970	997		150 Well abandoned.
	do.			do.	950	75	432	1,068	970			
3	Pemberton.	Pemberton, No. 8.	519	do.	970	35	451	1,049				Salt water, 1,050 feet.
	do.			do.	1,050		531	969				
	Kirkwood.			Kirkwood.	1,426		906	594	1,469			
	Bridgeport.			Bridgeport.	834	15	304	1,196				
4	Pemberton.	Pemberton, No. 3.	530	do.	894	20	364	1,136				
	do.			do.	917	20	387	1,113				
	do.			do.	977	20	447	1,053				150 Salt water, 997 to 1,017 feet.
	do.			do.	858	27	328	1,172				
	do.			do.	1,010	12	480	1,020				
5	Pemberton.	Pemberton, No. 7.	530	Buchanan.	1,095	115	565	835				Salt water.
	do.			"Gas".	1,345		815	685				Gas, 1,345 feet.
	Kirkwood.			Kirkwood.	1,421	41	891	609	1,472			Red rock, 1,275 feet.
	Bridgeport.			Bridgeport.	836	11	290	1,201				
6	Pemberton.	Pemberton, No. 1.	537	do.	831	15	394	1,106				
	do.			do.	967	26	430	1,070				
	do.			do.	998	11	461	1,039				250 Well abandoned.
	do.			do.	986	26	329	1,171				
	do.			do.	905	44	368	1,152				
	do.			do.	1,035	40	498	1,002				Salt water.
7	Pemberton.	Pemberton, No. 6.	537	"Gas".	1,330	28	703	707				Red rock, 1,250 and 1,280 feet.
	do.			do.	1,330							
	Kirkwood.			Kirkwood.	1,391	34	854	646	1,426			
	Bridgeport.			Bridgeport.	904	46	367	1,133	925			
8	Pemberton.	Pemberton, No. 16.	537	do.	972	37	435	1,065				1,009
	do.			do.	820	15	300	1,200				
	do.			do.	903	18	383	1,117				
	do.			do.	959	15	439	1,016				
9	Pemberton.	Pemberton, No. 2.	520	do.	984		464	1,086				150

S. E...

## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur- face, ele- vation— feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.			
30— S; E...	30	Bridgeport.....	Willey, No. 3.....	514 {	Bridgeport.....	900	35	386	1,116	1,037		
					do.....	955	13	441	1,069			
					do.....	990		476	1,034			
	31	Curtis, Akin & Co.....	Fitch, No. 5.....	504 {	Gas.....	1,003	25	499	994		Gas	Red rock, 1,380 feet.
					Kirkwood.....	1,320	6	815	911			
					Bridgeport.....	1,337	10	853	917			
	32	Curtis, Akin & Co.....	Fitch, No. 9.....	502 {	do.....	775	9	273	1,227			
					do.....	846	35	243	1,237			
					do.....	894	9	232	1,238			
					do.....	915	10	213	1,267	915		Gas, 908 feet.
					do.....	980	12	153	1,428	908		Salt water, 1,075 feet.
					do.....	1,025	19	122	1,477	1,030		Gas, 1,306 feet.
33	33	Curtis, Akin & Co.....	Fitch, No. 14.....	505 {	Buchanan-1.....	1,035	30	363	972			
					Buchanan-2.....	1,135	17	563	972			
					Gas.....	1,300	12	879	921	1,380		Gas, 1,306 feet.
	34	Curtis, Akin & Co.....	Fitch, No. 2.....	496 {	Kirkwood-1.....	1,331	15	879	911			Gas, 1,291 feet.
					Kirkwood-2.....	1,391	17	899	911			Gas, 1,306 feet.
					Tracy.....	1,506	8	1,094	896			Gas, 1,616 feet.
	35	Curtis, Akin & Co.....	Fitch, No. 15.....	496 {	McCleary.....	1,610	6	1,117	838	925	Light	
					Bridgeport.....	1,622	26	1,117	838	925		
					do.....	1,625	26	1,117	838	925		Salt water, 1,075 feet.
34	34	Curtis, Akin & Co.....	Fitch, No. 14.....	505 {	Buchanan.....	1,075	15	870	930			
					Kirkwood.....	1,294	2	899	911			
					Tracy.....	1,514	6	1,099	911	1,617		Gas, 1,514 feet.
	35	Curtis, Akin & Co.....	Fitch, No. 2.....	496 {	Bridgeport.....	795	10	271	1,221		Best	
					do.....	846	9	232	1,238			
					do.....	915	10	213	1,267	945		
	36	Curtis, Akin & Co.....	Fitch, No. 15.....	496 {	do.....	925	19	1,095	930			
					do.....	1,025	20	899	911	1,015		
					do.....	1,045	20	871	911	1,015		Salt water, 1,047 feet.
	37	Curtis, Akin & Co.....	Fitch, No. 15.....	496 {	Buchanan.....	1,045	20	871	911	1,015		
					Kirkwood.....	1,370	12	871	911	1,373		
					do.....	1,370	12	871	911	1,373		



## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur- face, ele- vation— feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
30— S; E...	30	Bridgeport.....	Willey, No. 3.....	514	Bridgeport.....	900	35	386	1,114				
					do.....	965	13	441	1,069		1,037		
					do.....	980		476	1,024				
	31	Curtis, Akin & Co.....	Fitch, No. 5.....	504	"Gas".....	1,003	25	499	694			Gas	Red rock, 1,380 feet.
					Kirkwood.....	1,320		816	617				
					Bridgeport.....	1,337	10	273	1,227				
					do.....	845	9	343	1,157				
					do.....	864	35	342	1,138				
					do.....	915	10	413	1,067	915			Gas, 968 feet.
	32	Curtis, Akin & Co.....	Fitch, No. 9.....	502	do.....	960	12	458	1,042	968			
					Buchanan-1.....	1,025	19	523	977	1,030			Salt water, 1,075 feet.
					Buchanan-2.....	1,135	17	633	867				Gas, 1,305 feet.
					"Gas".....	1,300	12	798	702	1,380			
					Kirkwood-1.....	1,831	3	879	621				Gas, 1,391 feet.
					Kirkwood-2.....	1,821	17	889	611				Gas, 1,505 feet.
					Tracey.....	1,806	8	1,004	498				Gas, 1,616 feet.
					McCleary.....	1,016		1,114	388			Light	
					Bridgeport.....	922	6	417	1,083	925			
33	Curtis, Akin & Co.....	Fitch, No. 14.....	505	do.....	1,035	25	580	590	970	1,042			Salt water, 1,075 feet.
				Buchanan.....	1,078	15	570	890					
				Kirkwood.....	1,894	2	889	611		1,617		Gas, 1,614 feet.	
34	Curtis, Akin & Co.....	Fitch, No. 2.....	496	Tracey.....	1,514	6	1,009	491					
				Bridgeport.....	796		289	1,491			Best		
				do.....	846		323	1,148		945			
35	Curtis, Akin & Co.....	Fitch, No. 15.....	496	do.....	910	19	414	1,086					
				do.....	925	20	439	1,071					
				do.....	1,005	20	509	991	1,015			Salt water, 1,047 feet.	
				Buchanan.....	1,045	901	549	901					
				Kirkwood.....	1,870	12	874	926	1,373	1,433			

No.	Locality	Stallings, No. 9	493	Bridgeport.	907	13	414	1,049	Show
54	Kewanee			do.	945	51	452	1,049	
				do.	945		447	1,083	997
55	Kewanee	Stallings, No. 14.	498	"Gas".	1,260	3	762	738	
				Kirkwood	1,312	60	814	686	250
				Tracey	1,395	59	897	603	
56	Kewanee	Stallings, No. 8.	498	Bridgeport.	933	17	435	1,065	1,454
				do.	980	22	482	1,018	980
				do.	989	41	397	1,103	1,004
57	Kewanee	Stallings, No. 5.	472	do.	930		458	1,042	
				do.	965		493	1,007	985
				do.	913		425	1,075	
58	Kewanee	Stallings, No. 3.	488	do.	975	10	487	1,013	
				Kirkwood	1,322	40	818	682	
59	Kewanee	Stallings, No. 12.	504	Tracey	1,435	5	931	569	
				McClosky	1,562	4	1,858	442	1,566
60	Kewanee	Stallings, No. 7.	504	Bridgeport.	940	20	436	1,064	
				do.	913		421	1,079	1,016
				do.	930		438	1,062	
61	Kewanee	Stallings, No. 6.	492	do.	960		498	1,032	
				do.	985		493	1,007	1,206
62	Kewanee	Stallings, No. 11.	487	do.	903		416	1,064	
				"Gas".	1,262	10	775	725	Gas, 1,262 feet.
				Kirkwood	1,320	16	853	697	
				Bridgeport.	782		305	1,186	
				do.	925	77	448	1,052	
63	Kewanee	Stallings, No. 2.	477	"Gas".	1,248		771	729	Gas.
				Kirkwood-1	1,313		856	664	Oil.
				Kirkwood-2	1,360	8	873	627	Gas.
				Tracey	1,368	34	898	612	Oil.
				Bridgeport.	798	6	316	1,184	
64	Kewanee	Stallings, No. 10.	482	do.	884	10	402	1,088	
				do.	950	80	448	1,052	984
				do.	781	30	288	1,212	35
65	Ohio	Sutton, No. 5.	493	do.	845	5	352	1,148	
				Buchanan	1,000	15	512	988	
66	Ohio	Sutton, No. 9.	488	Kirkwood	1,334	80	846	654	1,994
				Bridgeport.	820	210	331	1,169	
67	Ohio	Sutton, No. 11.	489	Kirkwood	1,335	54	846	654	1,335
				Bridgeport.	808	44	302	1,198	100
68	Ohio	Sutton, No. 4.	504	do.	960	49	456	1,044	35
				do.	790	250	290	1,210	
				Kirkwood	1,331	59	831	669	1,340
69	Ohio	Sutton, No. 10.	500	Tracey	1,495	10	996	505	
				McClosky	1,565	5	1,065	435	1,570
70	Ohio	Sutton, No. 7.	505	Kirkwood	1,321	24	816	684	Gas, 1,495 feet.
				Bridgeport.	783	37	279	1,221	Gas, 1,565 feet, 2,000,000 cu. ft. daily
71	Ohio	Sutton, No. 1.	504	do.	893	41	389	1,111	Gas
72	Ohio	Sutton, No. 12.	485	Kirkwood	1,343	33	858	642	1,320
					1,343		858	642	1,343

## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Surface elevation—feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
30—S. E. .	47	Curtis, Akin & Co.	Fitch, No. 7.	494	Bridgeport.....	858	53	364	1,136	864			
					do.....	951		457	1,043	951			
					Bridgeport and Buchanan.....	1,015	171	521	979	1,020			Salt water, 1,030 feet.
					"Gas".....	1,300	20	805	694				Gas, 1,305 feet.
					Kirkwood-1.....	1,365	40	871	629	1,370			Red rock, 1,295 feet.
	48	Curtis, Akin & Co.	Fitch, No. 16.	498	Kirkwood-2.....	1,416	6	922	578				
					Tracey-1.....	1,506	14	1,012	488				
					Tracey-2.....	1,565	8	1,071	429				Gas, 1,565 feet.
					McClosky.....	1,600		1,106	394	1,606			Gas, 1,600 feet.
					Bridgeport.....	889		391	1,109				
49	Curtis, Akin & Co.	Fitch, No. 3.	Fitch, No. 3.	475	do.....	1,015	12	517	983	1,015			
					do.....	776		301	1,199				
					do.....	806		331	1,169				
					do.....	874		399	1,101		947		
					do.....	773	79	298	1,202	773			
	Curtis, Akin & Co.	Fitch, No. 17.	Fitch, No. 17.	475	do.....	905	40	430	1,070				
					do.....	990	5	515	985	990			
					Buchanan.....	1,000	45	585	915				
					"Gas".....	1,228		753	747				
					Kirkwood-1.....	1,300	40	825	675	1,300			
50	Kewanee	Stallings, No. 1.	Stallings, No. 1.	474	Kirkwood-2.....	1,368	20	863	607				
					Tracey.....	1,400	24	925	575	1,411			
					Bridgeport.....	802		328	1,172				
					do.....	912	81	438	1,063				
					Kirkwood.....	1,304	21	829	671				
	Kewanee	Stallings, No. 13.	Stallings, No. 13.	475	Tracey.....	1,401	21	926	574				
					Bridgeport.....	834		341	1,159		1,433		
					do.....	864		371	1,129				
					do.....	837		444	1,056				
					Kirkwood.....	1,200	54	503	1,007				

54	Kewanee.....	483	Stallings, No. 9.....	907	13	414	1,086	912	997	Show
	do.....		do.....	945	51	462	1,048			
	do.....		Gas.....	945		447	1,053			
55	Kewanee.....	498	Kirkwood.....	1,260	3	762	738			250
	do.....		Tracey.....	1,312	60	814	686			
	do.....		Bridgeport.....	1,365	59	897	633			1,454
56	Kewanee.....	498	do.....	933	17	435	1,065			
	do.....		Stallings, No. 8.....	980	22	452	1,018	980	1,004	
	do.....		do.....	869	41	397	1,103	905		
57	Kewanee.....	472	do.....	930		468	1,042			
	do.....		do.....	965		483	1,007	985	997	
	do.....		do.....	913		425	1,075			
58	Kewanee.....	488	do.....	973	10	457	1,013			
	do.....		Kirkwood.....	1,322	40	815	632			
	do.....		Tracey.....	1,455	5	931	569			
59	Kewanee.....	504	McClosky.....	1,562	4	1,663	442			Gas, 1,562 feet, 6,000,000 cu. ft. gas daily.
	do.....		do.....					1,566		
60	Kewanee.....	504	Bridgeport.....	940	20	436	1,064			
	do.....		do.....	913		421	1,079			
	do.....		do.....	930		438	1,032			
61	Kewanee.....	492	do.....	960		468	1,032			
	do.....		do.....	965		483	1,007			1,296
	do.....		do.....	933		416	1,064			
62	Kewanee.....	487	do.....	1,262	10	773	725			Gas, 1,262 feet.
	do.....		Gas.....	1,320	16	833	667			
	do.....		Kirkwood.....	782		305	1,195			
	do.....		Bridgeport.....	925	77	445	1,052			
	do.....		do.....	1,248		771	729			
63	Kewanee.....	477	Gas.....	1,313		836	664			Gas.
	do.....		Kirkwood-1.....	1,350	8	873	637			Oil.
	do.....		Kirkwood-2.....	1,365	34	888	612			Oil.
	do.....		Tracey.....	788		316	1,184			
64	Kewanee.....	482	Bridgeport.....	894	10	402	1,098			
	do.....		do.....	930	30	448	1,032			
	do.....		do.....	781	30	288	1,212	790	984	35
	do.....		do.....	845	51	352	1,148			
65	Ohio.....	483	do.....	1,000	15	512	988			
	do.....		Buchanan.....	1,334	60	846	654			Well abandoned.
66	Ohio.....	488	Kirkwood.....	820	210	331	1,069			
	do.....		Bridgeport.....	1,335	54	846	654			
67	Ohio.....	489	Kirkwood.....	808	44	362	1,198			
	do.....		Bridgeport.....	960	49	456	1,044	1,000		
68	Ohio.....	504	do.....	790	250	280	1,210			35
	do.....		do.....	1,331	59	831	669	1,340		
69	Ohio.....	500	Kirkwood.....	1,495	10	966	505			
	do.....		Tracey.....	1,565	5	1,065	435			Gas, 1,495 feet.
	do.....		McClosky.....					1,570		Gas, 1,565 feet, 2,000,000 cu. ft. daily.
	do.....		do.....							
70	Ohio.....	505	Kirkwood.....	1,321	24	816	684			
	do.....		Bridgeport.....	783	37	279	1,221			
71	Ohio.....	504	do.....	893	41	389	1,111			68
	do.....		do.....	1,343	33	888	642			
72	Ohio.....	485	Kirkwood.....					1,343	1,386	75



## Lawrence County—Petty Township—Continued.

Section No.	Map No.	Name of oil company.	Name of well.	Sur-face elevation—feet.	Sand.				Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
30— S. E.	73 Ohio		Sutton, No. 3	508	816	24	308	1,192	990	1,392	35	
	74 Ohio		Sutton, No. 8	542	947	24	439	1,061	1,392	1,403	60	Gas, 1,315 feet.
	75 Ohio		Sutton, No. 2	542	1,392	25	850	650	1,392	1,403	60	
	76 Ohio		Sutton, No. 6	537	945	20	403	1,097	885		50	
30 (N)— N. W.— 31 (N.)— N. W.— S. W.					935	113	398	1,217	1,045			
	1 Ohio		Wright, No. 1	435	1,647	33	1,212	288	1,650	1,694	28	T. 5 N., R. 12 W.
	1 Haywood		Kimmel, No. 1	432	1,692	12	1,228	279	240	1,760	Dry	
	1 Ohio		Wagoner, No. 1	435	1,693	12	1,228	279	240	1,760	Dry	T. 5 N., R. 12 W.
34— S. E.— 35— N. E.	2 Ohio		Wagoner, No. 3	435	1,482	18	1,047	453	1,482	1,676	28	Gas, 1,647 feet.
					1,647		1,212	228	1,647			
	3 Ohio		Wagoner, No. 2	435	1,670	3	1,235	265	2,001	2,001	Dry	
	1 Ohio		A. Wagoner, No. 1	437					1,694	1,694	Dry	T. 5 N. R. 13 W.
	1 Haywood		D. Updike, No. 7	436	1,490	25	1,054	446			No record.	
	2 Haywood		D. Updike, No. 5	436	1,540	20	1,104	394		1,580	50	Gas.
					1,460	14	1,024	476				
	3 Haywood		D. Updike, No. 6	438	1,498	30	1,063	438	1,680	1,683	50	Gas.
					1,617	31	1,151	319				
	4 Ohio		G. Racop, No. 3	435	1,542	18	1,107	383				Drilling
	5 Ohio		Schaefer, No. 1	435	1,545	16	1,110	380	1,645	1,660	76	Gas, 1,545 feet.
	7 Ohio		Schaefer, No. 2	435	1,543	14	1,108	392	1,543	1,563	37	Gas, 1,543 feet.
	8 Ohio		Parrot, No. 1	435	1,510	30	1,076	425	1,530	1,530	12	Gas, 1,510 feet.
	9 Ohio		Parrot, No. 2	436	1,628	30	1,101	309	1,658	1,700	30	Gas, 1,647 feet.
					1,646		1,206	291	1,647	1,700		

10 Ohio.....	M. Smith, No. 2.....	437	Tracy McCluskey.....	1,530 1,601	10 17	1,093 1,164	407 336	1,530 1,672	50	
11 Ohio.....	W. Updike, No. 1.....	436	Tracy McCluskey.....	1,518 1,602	17 16	1,092 1,166	334 334	1,602 1,660	15	Gas, 1,518 feet.
12 Ohio.....	M. Smith, No. 1.....	437	"Gas" Kirkwood.....	1,470 1,470	10 40	1,093 1,093	517 517	1,640 1,645	Gas	Gas, 1,530 feet.
13 Ohio.....	Walters, No. 3.....	436	McCluskey Kirkwood.....	1,439 1,439	8 11	1,094 1,094	505 505	1,600 1,645	5	Gas, 1,530 feet.
14 Ohio.....	Walters, No. 7.....	444	McCluskey do.....	1,605 1,605	20 15	1,161 1,161	339 339	1,605 1,631	35	Gas, 1,605 feet.
15 Ohio.....	Walters, No. 5.....	438	McCluskey do.....	1,620 1,620	20 15	1,182 1,182	318 318	1,620 1,641	65	Gas, 1,628 feet.
1 Ohio.....	Walters, No. 6.....	444	McCluskey do.....	1,430 1,430	20 22	1,096 1,096	541 541	1,615 1,627	50	Gas, 1,440 feet.
2 Ohio.....	Walters, No. 4.....	435	Kirkwood do.....	1,406 1,406	16 22	1,159 1,159	320 320	1,406 1,427	50	Drilling.
3 Ohio.....	Allen Hrs., No. 1.....	436	Kirkwood do.....	1,431 1,392	14 8	995 956	505 544	1,431 1,447	42	Gas, 1,431 feet.
4 Ohio.....	Allen Hrs., No. 2.....	437	do.....	1,392 1,392	8 40	956 956	544 966	1,406 1,406	Dry	Hole full of salt water, 990 feet.
5 Ohio.....	Allen Hrs., No. 3.....	436	Bridgeport.....	850	40	514	966	.....	.....	.....
6 Ohio.....	Allen Hrs., No. 2.....	436	Buchanan Stray.....	1,155 1,275	15 5	719 839	781 661	.....	.....	.....
7 Snowden Bros.....	Petty, No. 2.....	436	"Gas" Kirkwood-1 Kirkwood-2 Bridgeport do.....	1,330 1,378 1,413 870 920	10 22 15 60	894 942 977 434	606 558 523 1,046	1,335 1,385 1,413 1,046	.....	Salt water, 1,280 feet. Red shale, 1,280 and 1,408 feet.
8 Snowden Bros.....	Petty, No. 1.....	436	do.....	1,095 1,113	8 62	659 677	851 823	.....	.....	Salt water, 800 feet.
			Buchanan-1 Buchanan-2 Buchanan-3 Stray.....	1,185 1,185 1,240 1,245	35 15 10	749 804 829	751 696 671	.....	.....	Hole full of water, 980 feet.
			"Gas" Kirkwood-1 Kirkwood-2 Bridgeport do.....	1,326 1,366 1,400 868	10 26 12	890 930 944	610 610 538	1,326 1,400 1,400	125	Salt water, 870 feet.
9 Snowden Bros.....	Petty, No. 4.....	435	do.....	838 1,118	35 140	503 683	997 817	.....	.....	.....
			Buchanan "Gas" Kirkwood-1 Kirkwood-2 Bridgeport do.....	1,325 1,372 1,402 870	10 18 9	890 937 947	610 563 533	1,375 1,375 1,406 1,065	.....	Salt water, 885 and 940 feet.
			Buchanan Stray.....	1,115 1,230	100 15	680 795	820 705	.....	.....	.....
10 Snowden Bros.....	Petty, No. 3.....	435	do.....	1,310 1,367	22 30	875 932	626 668	1,328 1,375	.....	.....
			"Gas" Kirkwood-1 Kirkwood-2 do.....	1,402 1,402 1,392	12 19	967 967	533 533	1,435 1,408	60	Gas, 1,408 feet.
11 Ohio.....	G. Gray, No. 5.....	435	Kirkwood do.....	1,402 1,392	44 19	967 966	533 533	1,408 1,387	75	Gas, 1,408 feet.
12 Ohio.....	G. Gray, No. 1.....	435	do.....	1,392 1,400	44 19	966 966	534 534	1,400 1,400	75	Gas, 1,408 feet.
13 Ohio.....	G. Gray, No. 4.....	434	do.....	1,400	19	966	534	1,400	75	Gas, 1,408 feet.
1 Ohio.....	Longacker, No. 2.....	435	do.....	1,415	15	980	620	1,415	170	Gas, 1,408 feet.

## Lawrence County—Petty Township—Concluded.

Section No.	Map No.	Name of oil company.	Name of well.	Sur- face ele- va- tion feet.	Sand.					Oil depth—feet.	Total depth—feet.	Initial product—barrels.	Remarks.
					Name.	Depth to top—feet.	Thickness penetrated—feet.	Altitude below sea level—feet.	Altitude above datum plane—feet.				
36— S. E....	2	Ohio.....	Longnecker, No. 3.....	435 {	Kirkwood.....	1,450	5	1,015	485	1,611	1,647	Gas	Gas, 1,450 feet.....
	3	Ohio.....	Longnecker, No. 1.....	436 {	McCluskey.....	1,611	7	1,176	324	1,611	1,647	85	Gas, 1,450 feet.....
	4	Ohio.....	E. Smith, No. 1.....	435 {	do.....	1,602	43	1,166	334	1,602	1,952	Dry	Gas, 1,602 feet.....
	5	Ohio.....	E. Gray, No. 1.....	435 {	Kirkwood.....	1,498	22	1,033	437	1,621	1,657	75	Gas, 1,498 feet.....
	6	Ohio.....	E. Gray, No. 3.....	436 {	McCluskey.....	1,495	20	1,090	440	1,616	1,645	90	Gas, 1,498 feet.....
	7	Ohio.....	E. Gray, No. 2.....	438 {	do.....	1,616	19	1,131	319	1,616	1,645	40	Gas, 1,498 feet.....
						1,609	12	1,173	327	1,616	1,635		
						1,445	15	1,007	493	1,610	1,621	35	Gas, 1,610 feet.....
						1,608	10	1,108	332	1,610	1,621		

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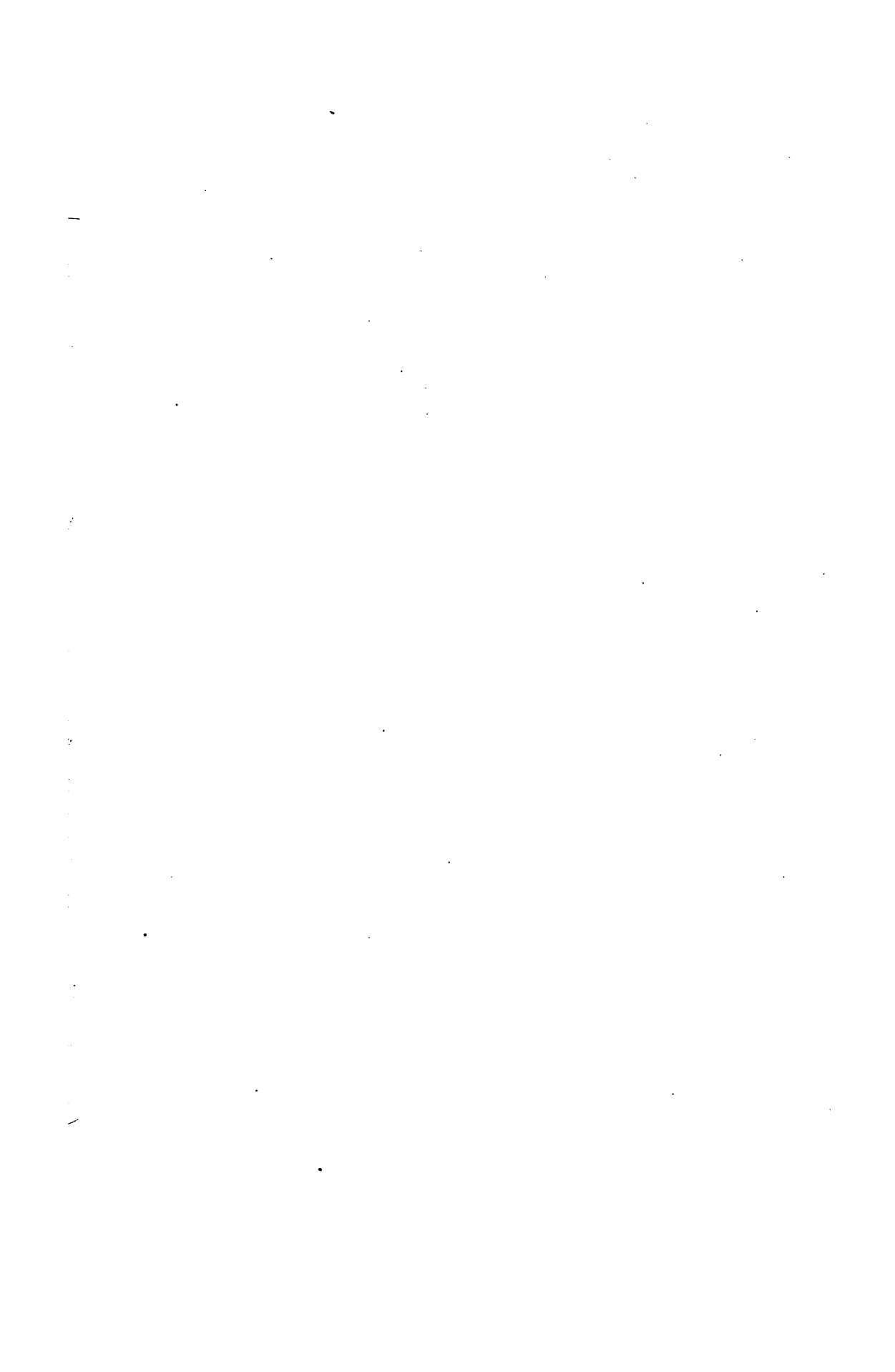
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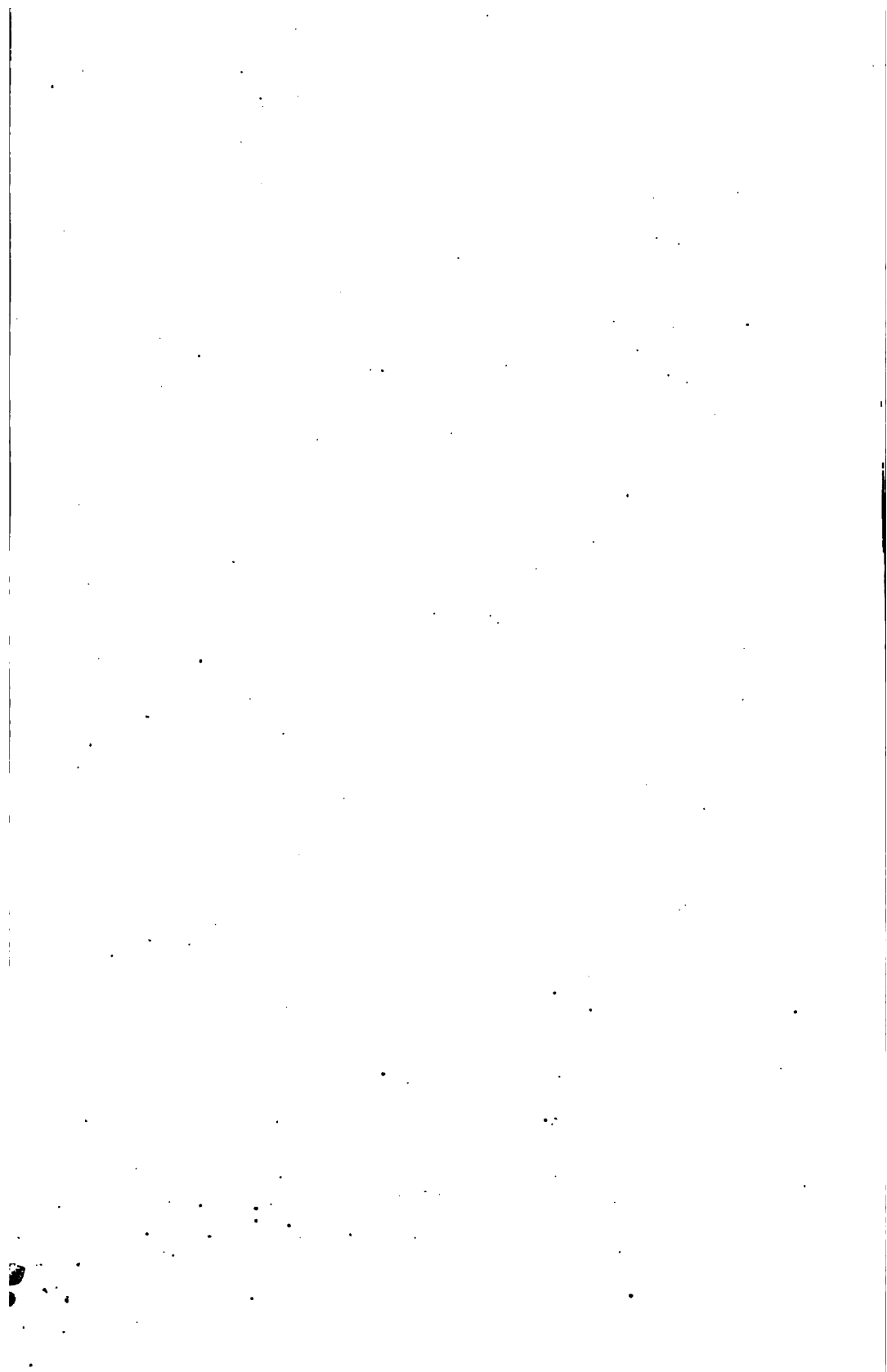
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